

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 [TJW]
	§	
COMCAST CORPORATION, COMCAST	§	
COMMUNICATIONS, LLC, and COMCAST	§	JURY
OF PLANO, LP	§	
Defendants.	§	

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**NOTICE OF APPEARANCE OF BECK, REDDEN & SECREST, LLP AS COUNSEL  
FOR FISH & RICHARDSON, P.C. FOR THE LIMITED PURPOSE  
OF OPPOSING MOTION TO DISQUALIFY**

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Fish & Richardson, P.C., counsel for Plaintiff in the above-captioned matter, hereby notifies the Court that David J. Beck (as lead attorney) and Geoff A. Gannaway (as of counsel) of the law firm of Beck, Redden & Secrest, L.L.P., One Houston Center, 1221 McKinney, Suite 4500, Houston, Texas 77010, are appearing on behalf of Fish & Richardson, P.C. in the above-referenced matter for the limited purpose of opposing Time Warner Cable Inc.'s Motion to Disqualify Fish & Richardson, P.C. All pleadings, discovery, correspondence and other material should be served upon counsel at the address referenced above.

Respectfully submitted,

BECK, REDDEN & SECREST  
A Registered Limited Liability Partnership

By: /s/ Geoff Gannaway with permission of

David J. Beck

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**CERTIFICATE OF SERVICE**

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of this document via electronic mail on September 11, 2006. I also hereby certify that all counsel of record who have consented to electronic service are being served with a notice of filing of this document, under seal, pursuant to L.R. CV-5(a)(7) on September 11, 2006.

Any other counsel of record will be served by first class mail on this same date.

/s/ Geoff Gannaway

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

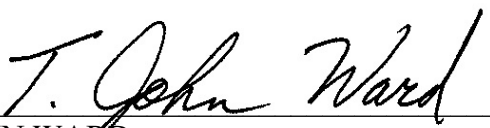
REMBRANDT TECHNOLOGIES, LP	§	
	§	
v.	§	Civil Action No. 2:05-cv-443 [TJW]
	§	JURY DEMANDED
COMCAST CORPORATION, COMCAST	§	
CABLE COMMUNICATIONS, LLC, and	§	
COMCAST OF PLANO, LP	§	FILED UNDER SEAL

**ORDER ON TIME WARNER CABLE INC.'S MOTION TO INTERVENE**

CAME ON THIS DATE TO BE CONSIDERED Time Warner Cable Inc.'s Motion to Intervene in this matter. The Court, after reviewing and considering the motion and opposition, if any, made by the Parties, is of the opinion that the motion should be granted.

IT IS, THEREFORE, ORDERED that Time Warner Cable Inc.'s Motion to Intervene be GRANTED.

SIGNED this 11th day of September, 2006.

  
\_\_\_\_\_  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
	§	
Plaintiff	§	
	§	
v.	§	Civil Action No. 2:05-cv-443-TJW
	§	Jury
COMCAST CORPORATION, COMCAST	§	
CABLE COMMUNICATIONS, LLC, and	§	
COMCAST OF PLANO, LP	§	

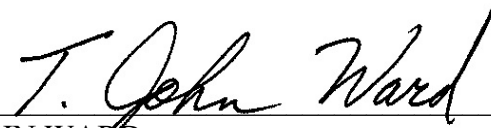
**ORDER GRANTING DEFENDANTS' MOTION TO EXCEED PAGE LIMIT**

Defendants Comcast Corp., Comcast Cable Communications, LLC ("Comcast Cable"), and Comcast of Plano, LP (collectively, "Comcast"), filed an Agreed Motion to Exceed the Page Limit in Defendant's Reply to Plaintiff's Opposition to Motion to Transfer Venue Pursuant to 28 U.S.C. § 1404(a). The Court, having reviewed the motion, and being well-advised, finds that the motion should be GRANTED.

It is therefore ORDERED that Comcast shall be allowed to exceed the page limit in Defendant's Reply to Plaintiff's Opposition to Motion to Transfer Venue Pursuant to 28 U.S.C. § 1404(a). It is further

ORDERED, ADJUDGED and DECREED that the Clerk of Court is to file Defendant's Reply to Plaintiff's Opposition to Motion to Transfer Venue Pursuant to 28 U.S.C. § 1404(a) as attached as Exhibit "A" to Defendants' Agreed Motion to Exceed Page Limit.

SIGNED this 11th day of September, 2006.

  
\_\_\_\_\_  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE



IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 [TJW]
	§	
COMCAST CORPORATION, COMCAST	§	
COMMUNICATIONS, LLC, and COMCAST	§	JURY
OF PLANO, LP	§	
Defendants.	§	

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**FISH & RICHARDSON, P.C.'S MOTION FOR EXTENSION OF TIME  
TO RESPOND TO MOTION TO DISQUALIFY AND  
MEMORANDUM OF LAW IN SUPPORT**

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Fish & Richardson, P.C. files this Motion for Extension of Time to Respond to Time Warner Cable Inc.'s Motion to Disqualify and Memorandum of Law in Support, and would respectfully show the Court as follows:

1. On August 30, 2006, Time Warner Cable Inc. filed a SEALED PATENT Motion for Leave to Exceed Page Limits (Motion to Exceed) regarding Motion to Disqualify Fish & Richardson, P.C. Attached to that Motion to Exceed was a Motion to Disqualify and Memorandum of Law in Support (Motion to Disqualify). It is not clear, because the Motion to Disqualify was filed only as an attachment to the Motion to Exceed, what date should be considered the filing date of the Motion to Disqualify. If the filing date of the Motion to Disqualify is treated as August 30, 2006, Fish & Richardson, P.C.'s response to the Motion to Disqualify, under the local rules, is currently due on September 14, 2006.

2. David J. Beck, the lead counsel appearing on behalf of Fish & Richardson, P.C., is out of the United States until September 20, 2006. Accordingly, Fish & Richardson, P.C. is seeking an extension of time in which to respond until September 28, 2006.

3. This motion is not sought for delay, but so that justice may be done.

4. Counsel for Fish & Richardson P.C. has conferred with counsel for Time Warner Cable Inc. regarding the substance of this motion. Counsel for Time Warner Cable Inc. was unable to represent either opposition or agreement on the day he was contacted, as he was not able to contact his client.

5. While it is not clear that the response to the Motion to Disqualify is due on September 14, 2006, Fish & Richardson P.C. files this motion out of an abundance of caution to ensure that it complies with the local deadlines.

WHEREFORE, PREMISES CONSIDERED, Fish & Richardson, P.C. pray that the Court extend the deadline to September 28, 2006 by which they must respond to the Motion to Disqualify and Memorandum of Law in Support.

Dated: September 12, 2006

Respectfully submitted,

BECK, REDDEN & SECREST  
A Registered Limited Liability Partnership

By: /s/ Geoff Gannaway with permission of  
David J. Beck

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FOR FISH & RICHARDSON, P.C.**

**OF COUNSEL APPEARING  
FOR FISH & RICHARDSON, P.C.**

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**CERTIFICATE OF CONFERENCE**

This certifies that counsel for Fish & Richardson P.C. conferred with counsel for the parties in a good faith attempt to resolve the matter without court intervention. Counsel for Time Warner Cable Inc., Mike Jones, was unable to represent either opposition or agreement on the day he was contacted, as he was not able to contact his client. Counsel for Defendants, Brian Ferrall of Keker & Van Nest, indicated that Defendants are not opposed to this motion.

/s/ Geoff A. Gannaway

**CERTIFICATE OF SERVICE**

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of this document via electronic mail on September 12, 2006.

Any other counsel of record will be served by first class mail on this same date.

/s/ Geoff A. Gannaway

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 [TJW]
	§	
COMCAST CORPORATION, COMCAST	§	
COMMUNICATIONS, LLC, and COMCAST	§	JURY
OF PLANO, LP	§	
Defendants.	§	

**ORDER GRANTING FISH & RICHARDSON, P.C.'S MOTION FOR EXTENSION  
OF TIME TO RESPOND TO MOTION TO DISQUALIFY AND  
MEMORANDUM OF LAW IN SUPPORT**

It is the opinion of the Court that the Motion for Extension of Time to Respond to Motion to Disqualify and Memorandum of Law in Support (“motion”) filed by Fish & Richardson, P.C. is well taken and should be granted. It is therefore,

ORDERED that the motion is GRANTED and Fish & Richardson, P.C. shall have until September 28, 2006, to file its response to Time Warner Cable Inc.'s Motion to Disqualify and Memorandum of Law in Support.

## EXHIBIT A

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

<b>REMBRANDT TECHNOLOGIES, LP</b>	§	
	§	
<b>Plaintiff</b>	§	
	§	
<b>v.</b>	§	<b>Civil Action No. 2:05-cv-443-TJW</b>
	§	<b>Jury</b>
<b>COMCAST CORPORATION, COMCAST</b>	§	
<b>CABLE COMMUNICATIONS, LLC, and</b>	§	
<b>COMCAST OF PLANO, LP</b>	§	

**DEFENDANT COMCAST’S SURREPLY TO PLAINTIFF’S  
MOTION TO COMPEL PRODUCTION OF DOCUMENTS**

Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP (collectively, “Comcast”) respectfully file this Surreply to Plaintiff’s Motion to Compel Production of Documents and would respectfully show the Court as follows:

**I. INTRODUCTION**

In its reply brief, Rembrandt fails to respond to every major issue raised by Comcast’s Opposition. First, Rembrandt ignores the fact that Comcast has already produced more than 59,000 e-mails and attachments to date in this litigation, and that the remainder of Comcast’s e-mails will likely be produced before this motion is even heard. Second, Rembrandt does not, and cannot, dispute that Comcast does not design the devices that are accused in this case, and as such, does not maintain or have access to any third-party source code. Third, nothing Rembrandt cites suggests that Rembrandt raised the relevance of so-called “configuration files” prior to Rembrandt’s letter of July 27, 2006 – mere days before this motion was filed. Fourth, Rembrandt makes no showing of prejudice from Comcast’s production of those files in the next few weeks, as Comcast is in the process of doing. Finally, Rembrandt says nothing about Comcast’s efforts to produce as many third party confidential documents as possible without violating contractual obligations, including Comcast’s sending notice letters to over 20

companies on May 19, 2006, and spending thousands of dollars to review documents from the objectors.

Instead, Rembrandt devotes the bulk of its reply brief to the *timing* of the production that Comcast already completed, which has no bearing whatsoever on the issues raised (or the relief requested) in Rembrandt's Motion. Rembrandt has not been seriously inconvenienced from the minor delays in Comcast's document production, and this motion should never have been filed.

## **II. ARGUMENT**

### **A. Comcast Is Producing All Relevant E-Mail Communications**

As explained in its opposition brief, Comcast has made diligent efforts to produce all e-mail communications responsive to Rembrandt's search terms. In fact, Comcast has produced over 59,000 e-mails and attachments to date, and the remainder are currently being formatted by Comcast's outside vendor and will be produced shortly. Contrary to Rembrandt's apparent beliefs, however, it takes time to process and format an e-mail production of this magnitude, and the speed at which this is completed is not entirely in Comcast's control. Rembrandt will have all responsive e-mail communications in a matter of days, which is the same timeframe Comcast has said from the beginning. Further, Rembrandt has made no showing of prejudice from this short delay.<sup>1</sup> Consequently, Rembrandt's motion should be denied.

### **B. Comcast Has No Source Code for the Accused Devices And Has Responded Diligently To Rembrandt's Request for Configuration Files.**

Based on interviews with several Comcast custodians, Comcast has confirmed that it does not have possession of any source code or firmware, as those terms are commonly used, relevant to the operation of the accused devices. Furthermore, based on a review of agreements

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<sup>1</sup> Contrary to the stance it has taken in this motion, Rembrandt itself has been producing documents on a "rolling" basis throughout this litigation. For example, Rembrandt produced approximately 800 pages of responsive documents on September 1, 2006, with no explanation for their delay. Similarly, Rembrandt produced 6,400 pages on July 10<sup>th</sup>, and another 800 on July 31<sup>st</sup> – both times well after the discovery deadline of June 16, 2006. Rembrandt can hardly be heard to complain about such conduct by Comcast.



with key vendors, Comcast is satisfied that it does not have the right to request or inspect any third-party source code relating to these devices. Once again, this is what Comcast has said from the beginning, and Rembrandt, who is in possession of the same agreements with the key equipment vendors, has not cited any provision to the contrary.

Perhaps sensing that source code is a dead issue, Rembrandt shifts course in its reply brief and argues that Comcast has delayed in producing so-called “configuration files” for the accused devices. (Reply brief at 2-3.) As the evidence makes clear, Rembrandt never raised the configuration files prior to Rembrandt’s letter of July 27, 2006. (*See* Ex. L to Rembrandt’s opening brief.) Since Rembrandt’s July 27<sup>th</sup> letter, Comcast has diligently investigated this issue and has identified certain configuration files used in Comcast’s network. These files, which are quite voluminous (approximately 400,000 pages), are currently being collected and will be produced shortly. Any claim that Comcast has delayed unnecessarily in collecting these documents is simply not true. And again, given the state of this case, Rembrandt has not identified any prejudice from the production of these files in September, as Comcast now anticipates. The motion should be denied as moot as to these files.

Much of Rembrandt’s motion in this regard is dedicated toward attempting to show how these configuration files were requested long ago. While irrelevant to the motion itself, Rembrandt’s accusations require correction. Rembrandt claims that its letter of January 9, 2006 requesting all documents “evidencing the extent to which the Comcast cable network ... complies with any version of the [relevant] standard” was sufficient to identify the relevance of these particular files. (Reply at 2.) Apart from the dubiousness of this claim on its face, Rembrandt ignores the fact that it did not even identify which aspects of Comcast’s network were at issue in this case until May of 2006 when it served its first set of interrogatories and preliminary infringement contentions. Rembrandt’s January 9 letter was so impossibly vague, with potential application to an enormous network of equipment and devices, that Comcast could

not possibly know that cable modem configuration files were demanded. Indeed, if configuration files are so “highly relevant”, as Rembrandt now contends, it is odd that Rembrandt waited *over 10 months* after this case was filed before making any specific mention of this.

Similarly, Rembrandt’s statement that Comcast “does not dispute that it is in possession of source code for servers that likely generate such configuration files” (Reply at 2) is just wrong, both as to what Comcast has said previously on this issue, and as to whether Comcast does in fact have possession of such source code. Based on Comcast’s recent investigation, it has learned that certain vendors do provide Comcast with the software that is used to generate these configuration files. Comcast does not possess or have access to the source code underlying this operation, however. Comcast only has copies of executable code, and only for some vendors. And, even though such software does not seem relevant, Comcast has already offered to produce whatever executable code it has in order to resolve this issue. (*See* Ex. 1.)

### **C. Comcast Did Not Delay In Its Document Collection Efforts**

Despite having no bearing on the relief requested in this motion, Rembrandt takes issue with the timing of Comcast’s document collection efforts as deduced from a recent statement from Comcast’s 30(b)(6) witness. (Reply at 4-5) Here again, Rembrandt presents a very skewed version of the facts.

In the months leading up to the Court’s scheduling conference on May 2, 2006, Comcast’s outside attorneys were engaged in collecting thousands of documents for this case in conjunction with collection efforts for other ongoing litigations, including *Caritas Technologies, Inc. v. Comcast Corporation* (Civil Action No. 2-05CV-339DF.) At the time, it was thought that the *Caritas* document collection would overlap with this case, based on Rembrandt’s identification in the complaint of high speed data services and VoIP as accused services. (*See* Complaint at ¶¶ 23, 29.) VoIP is at the center of the *Caritas* case, and shares some of the same

equipment as the high speed data network. Consequently, when Comcast's outside counsel stated at the scheduling conference that a large volume of documents had already been collected for this case, he was referring to the ongoing efforts to search for and review documents collected for the *Caritas* case, and from the *Caritas* production. Comcast's 30(b)(6) witness has not been involved with this aspect of the *Caritas* matter or with outside counsel's efforts in this regard, and thus had no way of knowing.

Comcast began its internal document collection for this case on May 8, 2006. While Rembrandt tries to portray this as delinquent or tardy, Comcast could not realistically have started its collection any sooner. Until Rembrandt served its first set of interrogatories on May 3, 2006, and its preliminary infringement contentions on May 12, 2006, Comcast was not even aware of the devices or products that were at issue in this case. (See Exhs. A and B to Rembrandt's First Set of Interrogatories, attached hereto as Ex. 2.) Indeed, prior to the initial Scheduling Conference in this case, counsel for Comcast asked if Rembrandt's counsel could provide its infringement contentions earlier than the rules allowed to allow Comcast to begin document collection earlier. Rembrandt's counsel declined. Thus, May 3, 2006 marked the first time in this case that Rembrandt specified with any measure of detail which components of Comcast's network it was accusing of infringement. Comcast began its internal document collection promptly thereafter. That Rembrandt seeks to portray Comcast's efforts in this regard as "late" is altogether mystifying.

### **III. CONCLUSION**

Comcast respectfully requests that the Court deny Rembrandt's Motion to Compel Production of Documents.

Respectfully submitted,

/s/

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**ATTORNEYS FOR DEFENDANTS  
COMCAST CORPORATION,  
COMCAST CABLE  
COMMUNICATIONS, LLC AND  
COMCAST OF PLANO, LP**

**CERTIFICATE OF SERVICE**

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). As such, this motion was served on all counsel who are deemed to have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to FED. R. CIV. P. 5(d) and Local Rule CV-5(e), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, **on this 6<sup>th</sup> day of September, 2006.**

/s/

Jennifer Haltom Doan

## **EXHIBIT 1**

LAW OFFICES

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September 1, 2006

**VIA E-MAIL**

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Re: Rembrandt Technologies, LP v. Comcast Corporation, et al.

Dear Michael and Tom:

I write in regards to several discovery issues that have been raised recently.

Source Code

Comcast has confirmed that it does not have possession of any source code or firmware, as those terms are traditionally used, that run on the accused devices. Furthermore, based on a review of agreements with key vendors, as well as interviews with several Comcast custodians, Comcast does not believe it has the right to request or inspect any third-party source code.

Configuration Files for CMTS / Cable Modem Products

Based on your letter of July 27<sup>th</sup>, Comcast has investigated the existence of so-called configuration files for its Cable Modem Termination Systems or Cable Modems (collectively, "cable modem products"). We have identified the existence of electronic files used to configure those cable modem products that are currently deployed in Comcast's network. Because the number of files is quite large, we are currently determining the most efficient way of gathering this information to produce. We will inform you shortly as to when you can expect it, but we anticipate that it will be ready for production by Friday, September 15<sup>th</sup>.

Additionally, while Comcast does not possess any software relating to the operation of the cable modem products, it has learned that certain vendors do provide Comcast with software that is used to generate these configuration files. Comcast does not possess or have access to the source code underlying this software, however. Comcast only has copies of executable code, and only for some vendors. While we do not see the relevance of software used to generate configuration files, if you would like copies of this executable code, we will make every effort to collect it.

September 1, 2006

Page 2

### Configuration Files for 8VSB Digital Receiver Products

Comcast does not possess or maintain software or configuration files for its 8VSB Digital Receivers. The receivers are configured manually when they are installed at the head-end, and subsequent software or firmware upgrades are typically installed directly on the device by the vendor and/or through web-based access that is hosted on the device itself. Comcast has no right (or business reason) to maintain copies of these software / firmware upgrades and, accordingly, it does not.

### Agreements with Content Providers

During our conversation on August 28, 2006, you requested copies of all agreements with content / service providers dating as far back as the earliest issue date of the patents-in-suit. Before Comcast undertakes the burden of searching for and collecting such agreements, we would ask Rembrandt to articulate more fully the contemplated relevance of these agreements. As I'm sure you realize, the accused digital receivers play no part in the distribution of most of the video content on Comcast's network. In its letter of August 16, 2006, Rembrandt makes the bare assertion that these agreements are "relevant because they relate to the revenues that Comcast receives for analogous services." Such is a fairly liberal standard for relevance that, if applied across the board, would result in very few aspects of Comcast's business being considered irrelevant. Please explain Rembrandt's theory as to how these agreements are relevant to this case, and Comcast will evaluate in a timely manner.

### Cable Franchise Agreements

As explained during our conversation on August 28, 2006, although these agreements do not seem relevant at all, Comcast has produced a sample-set of franchise agreements. Given the uniform nature of these agreements, it is not clear to Comcast why Rembrandt needs a copy of every agreement for each region across the country, which number in the hundreds if not thousands. Please explain the relevance of a complete set of these agreements. Further, I noted that these are public documents which Rembrandt can obtain directly from the appropriate city / municipality grantor. Therefore, it seems that the burden of collecting these documents is the same for both parties.

### License and Royalty Agreements

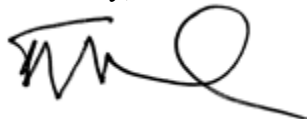
During our conversation on August 28, 2006, you requested copies of all license and royalty agreements involving Comcast that relate to the accused products or services. We note that many of the vendor agreements that we have already produced contain the relevant licenses for these products. We are currently searching for any additional agreements, and will produce them as soon as we are able to.

September 1, 2006

Page 3

Please do not hesitate to contact me should you have any additional questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Eric H. MacMichael', with a stylized, flowing script.

Eric H. MacMichael

EHM:dc

cc: Kim Kilbey  
Michael Forman



## **EXHIBIT 2**

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION, COMCAST  
CABLE COMMUNICATIONS, LLC, and  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

---

**PLAINTIFF REMBRANDT TECHNOLOGIES, LP'S FIRST SET OF  
INTERROGATORIES**

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Pursuant to Rule 33 of the Federal Rules of Civil Procedure, Plaintiff Rembrandt Technologies, LP requests that Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP answer the following interrogatories separately, fully, and under oath, within 30 days of service of this request. Defendants are subject to a duty to timely supplement all responses to these interrogatories in accordance with Rule 26(e) of the Federal Rules of Civil Procedure.

**A. DEFINITIONS**

1. "Plaintiff" or "Rembrandt" shall mean Rembrandt Technologies, LP including without limitation all of its corporate locations, and all predecessors, and affiliates, and all past or present directors, officers, agents, representatives, employees, consultants, and attorneys.

2. "Defendants," "Comcast," "you," or "your" means Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP, individually and collectively, including without limitation all of their corporate locations, and all predecessors, and affiliates, and all past or present directors, officers, agents, representatives, employees, consultants, and attorneys,

entities acting in joint-venture or partnership relationships with any one or more of them, and others acting on behalf of any one or more of them.

3. Any reference to any individual person, either singularly or as a part of a defined group, includes that individual person's employees, agents, successors, assignees, heirs, and representatives.

4. The term "all" includes and encompasses "any."

5. The words "and" and "or" shall be construed conjunctively or disjunctively, whichever makes the request most inclusive.

6. The "'627 patent" shall mean U.S. Patent No. 5,243,627.

7. The "'631 patent" shall mean U.S. Patent No. 5,852,631.

8. The "'858 patent" shall mean U.S. Patent No. 5,719,858.

9. The "'819 patent" shall mean U.S. Patent No. 4,937,819.

10. "Identify" means:

(a) (with respect to Persons) to give, to the extent known, the Person's full name, present or last known address, and when referring to a natural Person, additionally, the present or last known place of employment.

(b) (with respect to Documents) to give, to the extent known, the (i) type of Document, (ii) general subject matter, (iii) date of the Document, and (iv) author(s), addressee(s), and recipient(s).

11. "Person" means any natural person or any business, legal, or governmental entity or association.

12. "Document" shall be synonymous in meaning and equal in scope to the broadest meaning provided by Rule 34 of the Federal Rule of Civil Procedure 34, including, without limitation, electronic or computerized data compilations. A draft or non-identical copy is a separate Document within the meaning of this term.

13. “Thing” means any tangible object other than a Document including, without limitation, objects of every kind and nature, as well as prototypes, models, drafts, or specimens thereof.

14. “Communication” means the transmittal of information (in the form of facts, ideas, inquiries, or otherwise, and without limitation as to means or method).

15. “Prior Art” means that information which is defined by the broadest interpretation of 35 U.S.C. § 102 and 103, including, without limitation, information or knowledge that is accessible to a person of ordinary skill in the art, including that which would be obvious from such information or knowledge.

16. The terms “concern” and “concerning” mean relating to, referring to, describing, evidencing, constituting, embodying, containing, comprising, indicating, identifying, describing, discussing, involving, evidencing, or otherwise pertaining to the referenced subject.

17. The phrase “state in detail” means to state and describe, with specificity, each and every fact, circumstance, incident, act, omission, event, date, and/or legal contention relating to the matters inquired of in said interrogatory.

18. An “instrumentality” includes, without limitation, a method, process, system or apparatus.

19. A patent claim “covers” an instrumentality if the instrumentality infringes the claim, or would infringe the claim but for the existence of a license.

20. Used in reference to a patent or patent application, the term “related” means a patent or patent application that is related to the referenced patent in any way, including any parent, continuation, continuation-in-part, divisional, reexamination, reissue, or foreign counterpart patent or application.

21. The “patents-in-suit” refer to the ’627 patent, the ’631 patent, the ’858 patent, the ’819 patent, as well as U.S. Patent No. 5,710,761, U.S. Patent No. 5,103,227, and any patents or patent applications related to these patents.

22. “Infringed,” “infringement” or “infringe” refers to any form of infringement actionable under United States law, including direct infringement, contributory infringement, inducement to infringe, literal infringement, and infringement under the doctrine of equivalents.

23. The singular and masculine form of any noun or pronoun shall embrace and be read and applied as embracing the plural, the feminine and the neuter, except where circumstances clearly make it inappropriate.

24. The “Relevant DOCSIS-Compliant Instrumentalities” are Comcast’s cable network, and methods of delivering data over Comcast’s cable network, and the instrumentalities associated with delivering data over Comcast’s cable network, including those products listed on Exhibit A, and any other cable modems or cable modem termination systems that comply with any of the DOCSIS 1.0, 1.1 or 2.0, as used in connection with Comcast’s cable network.

25. The “Relevant ATSC Instrumentalities” are the system and method used by Comcast to receive and rebroadcast digital television signals, and the instrumentalities associated with receiving and rebroadcasting digital television signals, including the products listed on Exhibit B, and any other digital television equipment compliant with the ATSC standard, as used in connection with Comcast’s cable network.

26. The “Accused Instrumentalities” are the Relevant DOCSIS-Compliant Instrumentalities and the Relevant ATSC Instrumentalities.

27. The “DOCSIS 1.0 standard” means Society of Cable Telecommunications Engineers (Engineering Committee, Data Standards Subcommittee), Data-Over-Cable Service Interface Specification, DOCSIS 1.0 Radio Frequency Interface (RFI) (ANSI/SCTE 22-1 2002).

28. The “DOCSIS 1.1 standard” means the Data-Over-Cable Service Interface Specifications and Radio Frequency Interface Specification, SP-RFI-v1.1-I01-990311.

29. The “DOCSIS 2.0 standard” means the Data-Over-Cable Service Interface Specifications and Radio Frequency Interface Specification, SP-RFI-v2.0-I04-030730.

30. The “ATSC standard” means the “ATSC Standard: Digital Television Standard (A/53), Revision B, and, where appropriate in context, specifically Section 4 of Annex D of that standard.

**B. INTERROGATORIES**

INTERROGATORY NO. 1:

State in detail all facts upon which Comcast relies in asserting each of Comcast’s Affirmative Defenses set forth in Defendants’ Answer and Counterclaims and provide the identity of all individuals with knowledge of any such facts and the identity of all documents and things concerning any such facts.

INTERROGATORY NO. 2:

State in detail all facts upon which Comcast relies in asserting each of Comcast’s Counterclaims set forth in Defendants’ Answer and Counterclaims and provide the identity of all individuals with knowledge of any such facts and the identity of all documents and things concerning any such facts.

INTERROGATORY NO. 3:

If you contend that Comcast has not infringed any claim of Plaintiff’s patent-in-suit, explain the specific basis for each such contention, including which specific claim limitation(s) Comcast alleges are not met literally or equivalently by the Accused Instrumentalities, the reasons why Comcast so alleges, and the identity of each person with information concerning such contention and the production numbers of all documents that support such contentions.

INTERROGATORY NO. 4:

State in detail the circumstances under which Comcast first became aware of each of the patents-in-suit, identifying each person who first gained knowledge of each patent-in-suit and the circumstances under which that person became aware of the patent.

INTERROGATORY NO. 5:

Identify each cable modem, cable modem termination system, digital television receiver, and any other Accused Instrumentality that Comcast has made, used, sold, imported, or caused

any of these acts, or any such device used in connection with any data network or cable television network owned or operated by Comcast, since June 26, 1990, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory. For each product identified, include the manufacturer and model number, state whether Comcast makes, uses, sells, imports, or causes any of these acts.

INTERROGATORY NO. 6:

For each cable modem and cable modem termination system identified in your response to Interrogatory No. 5 (collectively the “cable modem products”), state whether the cable modem product is compliant with any version of DOCSIS, and, if so, which version or versions, and explain in detail the basis for your contention, if any, that the cable modem or cable modem termination system is either (a) not compliant with DOCSIS 2.0, or (b) not compliant with any version of DOCSIS.

INTERROGATORY NO. 7:

For each digital television receiver identified in your response to Interrogatory No. 5 (collectively the “ATSC products”), state whether the digital television receiver receives and/or decodes signals generated by equipment that is compliant with the ATSC Digital Television Standard. Explain in detail the basis for your contention, if any, that the digital television receiver does not receive and/or decode signals generated by equipment that is compliant with the ATSC Digital Television Standard.

INTERROGATORY NO. 8:

For each product identified in your response to Interrogatory No. 5 used by Comcast or used in connection with any data or cable network owned or operated by Comcast, explain in detail the manner in which the product is used.

INTERROGATORY NO. 9:

For each product identified in your response to Interrogatory No. 5, explain in detail the manner in which the product is acquired by Comcast and, where applicable, distributed to an

end-user, including an identification of each step in the supply chain, beginning with the manufacturer of the product, and ending with the installation at the end-user's location.

INTERROGATORY NO. 10:

For each applicable product identified in your response to Interrogatory No. 5, identify the person or persons involved in the design or development of the product's software, firmware, or other instructions intended to be executed by a processor or microprocessor. If a natural person is identified, identify the person's employer (if any), and state the person's address and telephone number. If a corporate person is identified, state the person's principal place of business, the address at which the software or firmware development takes place, and identify the natural person or persons responsible for such development.

INTERROGATORY NO. 11:

For each product identified in your response to Interrogatory No. 5, identify all communications between Comcast and the manufacturer of the product relating to the product.

INTERROGATORY NO. 12:

State with specificity Comcast's revenues derived from each cable modem product (specified by manufacturer and model), including the revenues by month Comcast derives from the provision of data service through the specified cable modem product, separately including equipment rental fees, service provision fees, and any other type of fee or charge for the use of Comcast's cable modem network, cable modem, or cable modem head-end, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

INTERROGATORY NO. 13:

State with specificity Comcast's revenues derived from each ATSC product, including a list of ATSC products (specified by manufacturer and model), including the revenues by month Comcast derives from customers who receive signals originally received from the specified ATSC product, separately including equipment rental fees, service provision fees, and any other type of fee or charge for cable television service, or any tier or service level thereof, and identify



three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

INTERROGATORY NO. 14:

Explain in detail all manners in which Comcast receives over-the-air TV signals according to the Terrestrial Broadcast provisions of the ATSC Digital TV Standard, and transmits such signals to its customers since September 7, 1993, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

INTERROGATORY NO. 15:

For each Accused Instrumentality identified in response to Interrogatory No. 5, identify all persons involved in the conception, design or development of any such product, whether or not such persons are currently or were previously employed by Comcast, and state the role that each such person played in the conception, design or development.

INTERROGATORY NO. 16:

To the extent that persons other than Comcast sell or offer for sale any of the cable modem products or ATSC products on behalf of Comcast, or for use with any data network or cable television network owned or operated by Comcast, identify the persons, providing the address, telephone number, and person at each entity in charge of such activities, and the dates during which each entity performed such activities since June 26, 1990.

INTERROGATORY NO. 17:

Identify all persons involved in Comcast's marketing, accounting, design, and development of any of the cable modem products and ATSC products, including the provision of cable modem service, indicating for each person which activity each person is associated with.

INTERROGATORY NO. 18:

List every patent that includes one or more claims that cover any of the cable modem products or ATSC products, and for each listed patent, include the name and address of the patent owner, identify the cable modem or ATSC product(s) covered by the patent, and identify

the claim or claims covering the cable modem or ATSC product(s), and identify with specificity any licensing agreement Comcast has entered with respect to the patent.

Dated: May 3, 2006

Respectfully submitted,

FISH & RICHARDSON P.C.

By: /s/ Thomas A. Brown

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Attorneys for Plaintiff  
REMBRANDT TECHNOLOGIES, LP

**PROOF OF SERVICE**

On May 3, 2006, I caused a copy of the following document(s):

PLAINTIFF REMBRANDT TECHNOLOGIES, LP'S FIRST SET OF  
INTERROGATORIES

to be served by FedEx and electronic mail on the interested parties in this action by placing a true and correct copy thereof, enclosed in a sealed envelope, and addressed as follows:

Brian L. Ferrall, Esq.  
Leo L. Lam, Esq.  
Keker & Van Nest, LLP  
710 Sansome Street  
San Francisco, CA 94111

Attorneys for Defendants  
Comcast Corporation, Comcast Cable  
Communications, LLC and Comcast of  
Plano, LP

I declare under penalty of perjury that the above is true and correct. Executed on May 3, 2006, at Boston, MA.

/s/ Thomas A. Brown

Thomas A. Brown

**EXHIBIT A****Relevant DOCSIS-Compliant Instrumentalities**

Note: “CM” and “CMTS” below identify a product as a cable modem or a cable modem termination system, respectively.

Vendor	Product Identification
ADC Telecommunications, Inc.	Cuda 12000 (CMTS)
Ambit Microsystems Inc.	<ul style="list-style-type: none"> <li>• 600740EUW (CM)</li> <li>• U10C018 (CM)</li> </ul>
Arris Group Inc.	<ul style="list-style-type: none"> <li>• Cadant C4 (CMTS)</li> <li>• CM450A (CM)</li> </ul>
Belkin Corporation	F5D5530-W (CM)
Best Data Products, Inc.	CMX300v2 (CM)
BigBand Networks, Inc.	Cuda 12000 (CMTS)
Broadxent Inc.	8601 (CM)
CastleNet Technology Inc.	<ul style="list-style-type: none"> <li>• CXC150 (CM)</li> <li>• CXC250 (CM)</li> <li>• DP1110XB2 (CM)</li> </ul>
Cisco Systems, Inc.	<ul style="list-style-type: none"> <li>• uBR7246 (CMTS)</li> <li>• uBR10012 (CMTS)</li> </ul>
Com21, Inc.	DP1110XB (CM)
D-Link Corporation	<ul style="list-style-type: none"> <li>• DCM-202 (CM)</li> <li>• DCM-201 (CM)</li> </ul>
Electroline Equipment Inc.	<ul style="list-style-type: none"> <li>• DHT-PS-NA-02 (CM)</li> <li>• DHT-PS-NA-01 (CM)</li> </ul>

Linksys	<ul style="list-style-type: none"> <li>• WCG200 (CM)</li> <li>• BEFCMU10 (CM)</li> <li>• BEFCMU10 ver. 2 (CM)</li> <li>• BEFCMU10 ver. 3 (CM)</li> <li>• BEFCMU10 ver. 4 (CM)</li> <li>• BEFCMUH4 (CM)</li> </ul>
Motorola, Inc.	<ul style="list-style-type: none"> <li>• SB3100 (CM)</li> <li>• SB4100 (CM)</li> <li>• SB4200 (CM)</li> <li>• SB4220 (CM)</li> <li>• SB5100 (CM)</li> <li>• SB5101 (CM)</li> <li>• SB5120 (CM)</li> <li>• SBG900 (CM)</li> <li>• SBG1000 (CM)</li> </ul>
Netgear Inc.	<ul style="list-style-type: none"> <li>• CVG824G (CM)</li> <li>• CG814WG (CM)</li> <li>• CG814Mv2 (CM)</li> </ul>
Pace Micro Technology plc	TDC775D (CM)
Samsung Telecommunications America LLP	SCM-140U (CM)
Scientific-Atlanta, Inc.	<ul style="list-style-type: none"> <li>• DPX100 (CM)</li> <li>• DPX2100 (CM)</li> <li>• DPC2100 (CM)</li> </ul>
SMC Networks Inc.	<ul style="list-style-type: none"> <li>• SMC8004CM (CM)</li> <li>• SMC8013WG (CM)</li> </ul>
Terayon Communication Systems, Inc.	<ul style="list-style-type: none"> <li>• ECM615 (CM)</li> <li>• TJ715 (CM)</li> <li>• TJ715X (CM)</li> <li>• TJ716X (CM)</li> <li>• BW3500 (CMTS)</li> </ul>

Thomson Inc.	<ul style="list-style-type: none"> <li>• DHG525 (CM)</li> <li>• DCW725 (CM)</li> <li>• DCM425 (CM)</li> <li>• DCM325 (CM)</li> <li>• DCW615 (CM)</li> <li>• DCM315 (CM)</li> <li>• DCM305 (CM)</li> <li>• DCM245 (CM)</li> </ul>
Toshiba America, Inc.	<ul style="list-style-type: none"> <li>• PCX2000 (CM)</li> <li>• PCX1100U (CM)</li> <li>• PCX2600 (CM)</li> <li>• PCX2200 (CM)</li> <li>• PCX2500 (CM)</li> </ul>
Zoom Technologies Inc.	5241 (CM)

**EXHIBIT B**Relevant ATSC Instrumentalities

Vendor	Product Identification
Harmonic Inc.	ProView ATSC 8VSB Receiver PVAR 6000
KTech Telecommunications, Inc.	DVM-150E Professional DTV Receiver/Decoder
Motorola, Inc.	HDD1100 High Definition Decoder
Scientific-Atlanta, Inc.	<ul style="list-style-type: none"> <li>• D6238 Demodulator</li> <li>• D6239 Demodulator/Multiplexer</li> </ul>
Terayon Communication Systems, Inc.	CP 7585 Dual 8VSB to ASI Demodulator
Wegener Communications, Inc.	<ul style="list-style-type: none"> <li>• DTV742 8VSB 4 Channel Multiplexer</li> <li>• DTV744 8VSB 4 Channel Demodulator</li> <li>• DTV720 Transport Stream Multiplexer</li> </ul>



**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP	§	
	§	
v.	§	Civil Action No. 2:05-cv-443 [TJW]
	§	JURY DEMANDED
COMCAST CORPORATION, COMCAST	§	
CABLE COMMUNICATIONS, LLC, and	§	
COMCAST OF PLANO, LP	§	

**TIME WARNER CABLE INC.'S NOTICE OF NON-OPPOSITION TO FISH &  
RICHARDSON'S MOTION FOR EXTENSION OF TIME TO RESPOND TO MOTION  
TO DISQUALIFY (DOCKET NO. 74) AND  
AGREED MOTION TO SET BRIEFING SCHEDULE**

Time Warner Cable Inc. respectfully notifies the Court of its non-opposition to Plaintiff's Motion for Extension of Time to Respond to Time Warner Cable Inc.'s Motion to Disqualify Fish & Richardson, P.C. (Docket No. 74, which was filed yesterday, September 12, 2006).

Additionally, in conference concerning this issue, please be advised that the parties have agreed concerning the following briefing schedule, and Time Warner Cable Inc. respectfully requests that the Court set the following briefing schedule concerning Time Warner Cable Inc.'s Motion to Disqualify Fish & Richardson (Dkt. No. 66).

<u><b>Briefing</b></u>	<u><b>Deadline</b></u>
Plaintiff's Rembrandt Technologies, LP, Opposition to Motion to Disqualify Fish & Richardson, P.C.	September 28, 2006
Consistent with Local Rules, Intervenor's, Time Warner Cable, Inc., Reply to Opposition to Motion to Disqualify Fish & Richardson, P. C.	October 16, 2006
Consistent with Local Rules, Plaintiff's, Rembrandt Technologies, LP, Sur-Reply to Intervenor Time Warner Cable, Inc. Reply to Opposition to Motion to Disqualify Fish & Richardson, P.C.	November 3, 2006

WHEREFORE, PREMISES CONSIDERED, Time Warner Cable Inc. respectfully notifies the Court of its non-opposition to Plaintiff's Motion for Extension of Time (Docket No.

74) and respectfully requests that the Court set the proposed briefing schedule concerning Time Warner Cable Inc.'s Motion to Disqualify as indicated herein.

DATED: September 13, 2006

Respectfully submitted,

/s/ Diane V. DeVasto

Michael E. Jones

State Bar No. 10929400

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**ATTORNEYS FOR INTERVENOR  
TIME WARNER CABLE INC.**

**CERTIFICATE OF SERVICE**

I hereby certify that the following counsel of record who are deemed to have consented to electronic service are being served this 13th day of September, 2006, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by First Class U.S. mail on this same date.

/s/ Diane V. DeVasto \_\_\_\_\_

Diane V. DeVasto

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP	§	
	§	
v.	§	Civil Action No. 2:05-cv-443 [TJW]
	§	JURY DEMANDED
COMCAST CORPORATION, COMCAST	§	
CABLE COMMUNICATIONS, LLC, and	§	
COMCAST OF PLANO, LP	§	

**ORDER**

On this day, the Court considered the Agreed Motion to Set Briefing Schedule for Parties to Respond to Intervenor's, Time Warner Cable Inc., Motion to Disqualify Fish & Richardson, P.C. The Court finds that the Motion is well-taken and should be GRANTED.

IT IS THEREFORE ORDERED that the briefing schedule concerning Time Warner Cable Inc.'s motion, Docket No. 66, is as follows:

<b><u>Briefing</u></b>	<b><u>Deadline</u></b>
Plaintiff's Rembrandt Technologies, LP, Opposition to Motion to Disqualify Fish & Richardson, P.C.	September 28, 2006
Consistent with Local Rules, Intervenor's, Time Warner Cable, Inc., Reply to Opposition to Motion to Disqualify Fish & Richardson, P. C.	October 16, 2006
Consistent with Local Rules, Plaintiff's, Rembrandt Technologies, LP, Sur-Reply to Intervenor Time Warner Cable, Inc. Reply to Opposition to Motion to Disqualify Fish & Richardson, P.C.	November 3, 2006

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

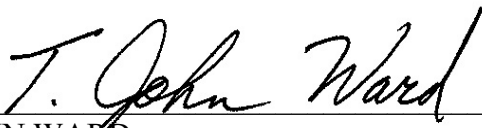
REMBRANDT TECHNOLOGIES, LP	§	
	§	
v.	§	Civil Action No. 2:05-cv-443 [TJW]
	§	JURY DEMANDED
COMCAST CORPORATION, COMCAST	§	
CABLE COMMUNICATIONS, LLC, and	§	
COMCAST OF PLANO, LP	§	FILED UNDER SEAL

**ORDER GRANTING TIME WARNER CABLE INC.'S  
MOTION FOR LEAVE TO EXCEED THE PAGE LIMIT REGARDING ITS  
MOTION TO DISQUALIFY FISH & RICHARDSON, P.C.  
AND MEMORANDUM OF LAW IN SUPPORT**

Before the Court is Time Warner Cable Inc.'s Motion for Leave to Exceed the Page Limit Regarding its Motion to Disqualify Fish & Richardson, P.C. and Memorandum of Law in Support. Having considered the Motion, the Court finds it is meritorious and should be GRANTED.

IT IS THEREFORE ORDERED, that Time Warner Cable Inc. is authorized to exceed the usual page limits and to file, under seal, its Motion to Disqualify Fish & Richardson, P.C. and Memorandum of Law in Support.

SIGNED this 14th day of September, 2006.

  
\_\_\_\_\_  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

**SEALED DOCUMENT**

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

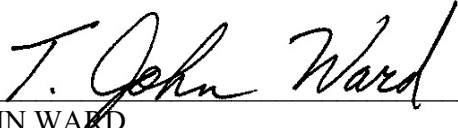
REMBRANDT TECHNOLOGIES, LP	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 [TJW]
	§	
COMCAST CORPORATION, COMCAST	§	JURY
COMMUNICATIONS, LLC, and COMCAST	§	
OF PLANO, LP	§	
Defendants.	§	

**ORDER GRANTING FISH & RICHARDSON, P.C.'S MOTION FOR EXTENSION  
OF TIME TO RESPOND TO MOTION TO DISQUALIFY AND  
MEMORANDUM OF LAW IN SUPPORT**

It is the opinion of the Court that the Motion for Extension of Time to Respond to Motion to Disqualify and Memorandum of Law in Support ("motion") filed by Fish & Richardson, P.C. is well taken and should be granted. It is therefore,

ORDERED that the motion is GRANTED and Fish & Richardson, P.C. shall have until September 28, 2006, to file its response to Time Warner Cable Inc.'s Motion to Disqualify and Memorandum of Law in Support.

SIGNED this 14th day of September, 2006.

  
\_\_\_\_\_  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

Appendix K

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
Marshall DIVISION  
APPLICATION TO APPEAR PRO HAC VICE

Revised: 12/3/03

FILED-CLERK  
U.S. DISTRICT COURT  
06 SEP 20 AM 9:57  
TX EASTERN-MARSHALL

1. This application is being made for the following: Case # 2:05-cv-443 (TJW)  
Style: Rembrandt Technologies, LP v. Comcast Corporation, et al BY [Signature]
2. Applicant is representing the following party/ies:  
Time Warner Cable Inc.
3. Applicant was admitted to practice in NY (state) on June 1988 (date).
4. Applicant is in good standing and is otherwise eligible to practice law before this court.
5. Applicant is not currently suspended or disbarred in any other court
6. Applicant has/has not had an application for admission to practice before another court denied (please circle appropriate language). If so, give complete information on a separate page
7. Applicant has/has not ever had the privilege to practice before another court suspended (please circle). If so, give complete information on a separate page
8. Applicant has/has not been disciplined by a court or Bar Association or committee thereof that would reflect unfavorably upon applicant's conduct, competency or fitness as a member of the Bar (please circle). If so, give complete information on a separate page.
9. Describe in detail on a separate page any charges, arrests or convictions for criminal offense(s) filed against you. Omit minor traffic offenses
10. There are no pending grievances or criminal matters pending against the applicant
11. Applicant has been admitted to practice in the following courts: New York, Eastern and Southern Districts of N.Y., the Court of Appeals for the Second Circuit.
12. Applicant has read and will comply with the Local Rules of the Eastern District of Texas, including Rule AT-3, the "Standards of Practice to be Observed by Attorneys"
13. Applicant has included the requisite \$25 fee (see Local Rule AT-1(d))
14. Applicant understands that he/she is being admitted for the limited purpose of appearing in the case specified above only.

Application Oath:

I, Michael A. Rogoff do solemnly swear (or affirm) that the above information is true; that I will discharge the duties of attorney and counselor of this court faithfully; that I will demean myself uprightly under the law and the highest ethics of our profession; and that I will support and defend the Constitution of the United States.

Date

9/18/06

Signature

[Signature]



Name (please print) Michael A. Rogoff  
State Bar Number 2209179  
Firm Name: Kaye Scholer LLP  
Address/P O Box: 425 Park Avenue  
City/State/Zip: New York, NY 10022  
Telephone #: (212) 836-8000  
Fax #: (212) 836-8689  
E-mail Address: mrogoff@kayescholer.com  
Secondary E-Mail Address: \_\_\_\_\_

Applicant is authorized to enter an appearance as counsel for the party/parties listed above. This application has been approved for the court this 20 day of Sept, 2006

David J Maland, Clerk  
U.S. District Court, Eastern District of Texas

By 

Deputy Clerk

Appendix K

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
Marshall DIVISION  
APPLICATION TO APPEAR PRO HAC VICE

FILED-CLERK  
Revised: 12/3/03 DISTRICT COURT

06 SEP 20 AM 9: 58

TX EASTERN-MARSHALL

1 This application is being made for the following: Case # 2:05-cv-443 (TJW)

Style: Rembrandt Technologies, LP v. Comcast Corporation, et al

2. Applicant is representing the following party/ies:

Time Warner Cable Inc.

3 Applicant was admitted to practice in NY (state) on May 1992 (date)

4 Applicant is in good standing and is otherwise eligible to practice law before this court

5 Applicant is not currently suspended or disbarred in any other court.

6. Applicant has/has not had an application for admission to practice before another court denied (please circle appropriate language) If so, give complete information on a separate page

7 Applicant has/has not ever had the privilege to practice before another court suspended (please circle) If so, give complete information on a separate page

8. Applicant has/has not been disciplined by a court or Bar Association or committee thereof that would reflect unfavorably upon applicant's conduct, competency or fitness as a member of the Bar (please circle) If so, give complete information on a separate page

9 Describe in detail on a separate page any charges, arrests or convictions for criminal offense(s) filed against you Omit minor traffic offenses.

10 There are no pending grievances or criminal matters pending against the applicant.

11 Applicant has been admitted to practice in the following courts: New York, Eastern and Southern Districts of N.Y.

12 Applicant has read and will comply with the Local Rules of the Eastern District of Texas, including Rule AT-3, the "Standards of Practice to be Observed by Attorneys "

13 Applicant has included the requisite \$25 fee (see Local Rule AT-1(d))

14 Applicant understands that he/she is being admitted for the limited purpose of appearing in the case specified above only

Application Oath:

I, David S. Benyacar do solemnly swear (or affirm) that the above information is true; that I will discharge the duties of attorney and counselor of this court faithfully; that I will demean myself uprightly under the law and the highest ethics of our profession; and that I will support and defend the Constitution of the United States.

Date

9/18/06

Signature

*David Benyacar*

Name (please print) David S. Benyacar  
State Bar Number 2481794  
Firm Name: Kaye Scholer LLP  
Address/P O Box: 425 Park Avenue  
City/State/Zip: New York, NY 10022  
Telephone #: (212) 836-8000  
Fax #: (212) 836-8689  
E-mail Address: dbenyacar@kayescholer.com  
Secondary E-Mail Address: \_\_\_\_\_

Applicant is authorized to enter an appearance as counsel for the party/parties listed above. This application has been approved for the court this 20 day of Sept, 2006

David J Maland, Clerk  
U.S. District Court, Eastern District of Texas

By 

Deputy Clerk

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

*Plaintiff,*

v.

COMCAST CORPORATION, ET AL.

*Defendant.*

§  
§  
§  
§  
§  
§  
§  
§  
§

C. A. No. 2:05cv443TJW

---

NOTICE OF APPEARANCE OF COUNSEL  
FOR DEFENDANTS, COMCAST CORPORATION; COMCAST CABLE  
COMMUNICATIONS, LLC; AND COMCAST OF PLANO, LP

---

Notice is hereby given that Harry L. Gillam, Jr. of Gillam & Smith, LLP enters his appearance on behalf of Defendants, COMCAST CORPORATION; COMCAST CABLE COMMUNICATIONS, LLC; and COMCAST OF PLANO, LP, in this matter as additional counsel.

Harry L. Gillam, Jr. may receive all communications from the Court and from other parties at Gillam & Smith, LLP, 303 South Washington Avenue, Marshall, Texas 75670; Telephone: (903) 934-8450; Facsimile: (903) 934-9257.

Respectfully submitted,

GILLAM & SMITH, LLP

/s/

---

Harry L. Gillam, Jr.  
State Bar No. 07921800  
GILLAM & SMITH, L.L.P.  
303 South Washington Avenue  
Marshall, Texas 75670

Telephone: (903) 934-8450  
Facsimile: (903) 934-9257  
Email: gil@gillamsmithlaw.com

**ATTORNEY FOR DEFENDANTS,  
COMCAST CORPORATION;  
COMCAST CABLE  
COMMUNICATIONS, LLC; and  
COMCAST OF PLANO, LP**

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). As such, this notice was served on all counsel who have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to Fed. R. Civ. P. 5(d) and Local Rule CV-5(e), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this the 25th day of September, 2006.

/s/  
\_\_\_\_\_  
Harry L. Gillam, Jr.

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 (TJW)
	§	
COMCAST CORPORATION, COMCAST	§	(JURY)
CABLE COMMUNICATIONS, LLC, AND	§	
COMCAST OF PLANO, LP	§	
	§	
Defendants	§	

**PLAINTIFF REMBRANDT TECHNOLOGIES, LP'S OPPOSITION TO  
TIME WARNER CABLE, INC.'S MOTION TO DISQUALIFY**

Plaintiff Rembrandt Technologies, LP ("Rembrandt") files this Response in Opposition to Intervenor Time Warner Cable, Inc.'s ("Time Warner") Motion to Disqualify Fish & Richardson ("F&R") as Rembrandt's counsel in this matter.

F&R has retained its own counsel to respond to Time Warner's claimed basis for disqualification, and Rembrandt understands that F&R's counsel will address why Time Warner fails to meet any of the legal standards governing disqualification. We, therefore, will not separately address those legal standards. Time Warner's motion, however, is more about a litigation strategy targeting Rembrandt than it is about any claimed legal prohibition on F&R's representation of Rembrandt in this matter. Therefore, we briefly will address two issues: (1) prejudice to Rembrandt and (2) waiver.

**I. Prejudice to Rembrandt**

Time Warner's assertion that disqualification of F&R will not prejudice Rembrandt is disingenuous.

It is undisputed that F&R has been preparing for and working in the Comcast litigation for over a year. In that time, F&R has spent over six thousand hours learning the technology, reviewing documents, handling discovery disputes and the numerous other responsibilities of outside litigation counsel in a case of this complexity. DECLARATION OF JOHN MELI at ¶ 3, attached as Exhibit A. Rembrandt has paid over \$2 million to F&R for that work. *Id.*

Time Warner is well aware that Rembrandt cannot simply substitute in this case other counsel representing it in the Time Warner and Cox, *et al*, cases, notwithstanding its contrary assertion. Those other cases are in the very earliest stages of litigation. Scheduling conferences have not been held, or even scheduled, in those cases. Moreover, counsel in those cases have a significant workload preparing those cases. They cannot simply drop their necessary work in those cases to become familiar with, and then take over, this case.

This case, by contrast, is well along, and a Markman hearing is scheduled for February 8, 2007. Other counsel's familiarity with whatever facts and issues are common to the cases is only a tiny fraction of the two years of experience F&R has. It is indisputable that a disqualification of F&R in this matter would result in a very significant delay in the progress of this action, and very significant damage to Rembrandt.

## **II. Waiver**

It is Time Warner's position that F&R is in possession of such important confidential information that disqualification of F&R is required to protect against disclosure of that information. Its very conduct in connection with this motion belies that assertion. If Time Warner believed that the information which forms the basis of the instant motion requires such protection, it would have filed its brief – or at least its declarations – *in camera*. It did not do so. Rather, Time Warner voluntarily disclosed its allegedly confidential information to every

attorney of record in this case – including attorneys representing Rembrandt in the Time Warner litigation. Time Warner was well aware that the law firms of Parker, Bunt & Ainsworth and Brown McCarroll, L.L.P. were counsel of record in both the Comcast and Time Warner actions, but they nevertheless provided the allegedly confidential information to them. Thus, due to Time Warner's own purposeful actions, counsel not only in the Comcast action, but also directly adverse to Time Warner in the Time Warner action, is now in possession of this information. Thus, to the extent the information was "confidential" for purposes of disqualification, Time Warner has waived any protection that such information would be afforded. *See, e.g., Nguyen, et al., v. Excel Corp.*, 197 F.3d 200, 207 (5<sup>th</sup> Cir. 1999) (holding that when confidential information is relayed to a third party, a communication is no longer confidential).

### **III. Conclusion**

For the above reasons, and those stated in F&R's response, Time Warner's Motion should be denied.

DATED this 28<sup>st</sup> day of September, 2006.

Respectfully submitted,

By: /s/ Otis W. Carroll by permission Andrew W. Spangler  
 Otis W. Carroll, Jr. – Lead Attorney  
 State Bar No. 03895700  
 James Patrick Kelley  
 State Bar No. 11202500  
 Collin Maloney  
 State Bar No. 00764219  
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ATTORNEYS FOR PLAINTIFF  
REMBRANDT TECHNOLOGIES, LP

**CERTIFICATE OF SERVICE**

I hereby certify that counsel of record who are deemed to have consented to electronic service are being served this 28th day of September, 2006, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by electronic mail, facsimile transmission and/or first class mail on this same date.

/s/ Andrew W. Spangler  
Andrew W. Spangler

AUS:3777204.1  
52670.1

**SEALED**

**DOCUMENT**

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP,

Plaintiff,

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS; LLC; and  
COMCAST OF PLANO, LP,

Defendants.

Case No. 2:05-CV-443-TJW

Jury

**JOINT MOTION TO MODIFY DOCKET CONTROL ORDER**

Defendants Comcast Corporation; Comcast Cable Communications, LLC; and Comcast of Plano, LP (collectively, “Comcast”) submit this joint motion to modify the docket control order to extend the deadline for the parties to amend their pleadings from November 9, 2006 until November 26, 2006, and would respectfully show the Court as follows:

1. On September 16, 2005, Plaintiff Rembrandt Technologies, LP (“Rembrandt”) filed its Complaint in this Court alleging that Comcast committed acts of patent infringement. (Dkt. #1).

2. On June 15, 2006, the Court entered a Docket Control Order, (*see* Dkt. #52), which set the deadline for the parties to amend their pleadings for November 9, 2006.

3. The parties request that the Court modify the Docket Control Order to permit an additional two weeks, or up to and including November 27, 2006, for the parties to amend their pleadings. Also, in necessity thereof, the parties request that the deadline to respond to amended pleadings be extended two weeks until December 11, 2006.

4. The Court can modify a Docket Control Order on a showing of good cause. FED. R. Civ. P. 16(b); *S&W Enters. V. South Trust Bank*, 315 F.3d 533, 535 (5<sup>th</sup> Cir. 2003). There is good cause to modify the current Docket Control Order to accommodate the extension of time for the parties to amend their pleadings, in order for additional discovery to be conducted prior to the deadline.

FOR THE FOREGOING REASONS the parties respectfully request that the Court enter the attached proposed Modified Docket Control Order, which provides the parties with an additional two weeks to amend their pleadings, and to respond to those amended pleadings.

By: /s/ Jennifer Haltom Doan

Jennifer Haltom Doan  
Texas Bar No. 08809050  
John Peyton Perkins, III  
Texas Bar No. 24043457  
HALTOM & DOAN, LLP  
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710 Sansome Street  
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Telephone: (415) 391-5400  
Facsimile: (415) 397-7188

**ATTORNEYS FOR DEFENDANTS  
COMCAST CORPORATION,  
COMCAST CABLE  
COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP**

**CERTIFICATE OF SERVICE**

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this 29<sup>th</sup> day of September, 2006.

\_\_\_\_\_  
/s/ Jennifer Haltom Doan  
Jennifer Haltom Doan

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

<b>REMBRANDT TECHNOLOGIES, LP</b>	§	
<b>V.</b>	§	
<b>COMCAST CORPORATION, ET AL.</b>	§	<b>CIVIL NO. 2:05-CV-443(TJW)</b>
	§	

**MODIFIED DOCKET CONTROL ORDER**

In accordance with the case scheduling conference held herein on the 2<sup>nd</sup> day of May, 2006,  
it is hereby

**ORDERED** that the following schedule of deadlines is in effect until further order of this  
court:

<b>August 6, 2007</b>	Jury Selection - 9:00 a.m. in <b>Marshall, Texas</b>
<b>July 26, 2007</b>	Pretrial Conference - 9:30 a.m. in <b>Marshall, Texas</b>
<b>July 20, 2007</b>	Joint Pretrial Order, Joint Proposed Jury Instructions and Form of the Verdict.
<b>July 23, 2007</b>	<b>Motions in Limine (due three days before final Pre-Trial Conference).</b>

Three (3) days prior to the pre-trial conference provided for herein, the parties shall furnish a copy of their respective Motions in Liming to the Court by facsimile transmission, 903/935-2295. The parties are directed to confer and advise the Court on or before 3:00 o'clock p.m. the day before the pre-trial conference which paragraphs are agreed to and those that need to be addressed at the pre-trial conference.

<b>July 6, 2007</b>	Response to Dispositive Motions (including <i>Daubert</i> motions) <sup>1</sup> <b>Responses to dispositive motions filed prior to the dispositive motion deadline, including <i>Daubert</i> Motions, shall be due in accordance with Local Rule CV-7(e). Motions for Summary Judgment shall comply with Local Rule CV56.</b>
<b>June 22, 2007</b>	For Filing Dispositive Motions and any other motions that may require a hearing (including <i>Daubert</i> motions)
<b>May 24, 2007</b>	Mediation to be completed
<b>May 23, 2007</b>	Defendant to Identify Trial Witnesses
<b>May 9, 2007</b>	Plaintiff to Identify Trial Witnesses
<b>May 9, 2007</b>	Discovery Deadline
<b>(Three weeks after the final expert witness report is due.)</b>	Expert Discovery Deadline
_____	30 Days after claim construction ruling Designate Rebuttal Expert Witnesses other than claims construction Expert witness report due Refer to Discovery Order for required information.
_____	15 Days after claim construction ruling Comply with P.R. 3-8.
_____	15 Days after claim construction ruling Party with the burden of proof to designate Expert Witnesses other than claims construction Expert witness report due Refer to Discovery Order for required information

---

<sup>1</sup> The parties are directed to Local Rule CV-7(d), which provides in part that "[i]n the event a party fails to oppose a motion in the manner prescribed herein the court will assume that the party has no opposition." Local Rule CV-7(e) provides that a party opposing a motion has **12 days, in addition to any added time permitted under Fed. R. Civ. P. 6(e)**, in which to serve and file a response and any supporting documents, after which the court will consider the submitted motion for decision.



<b>February 8, 2007</b>	Claim construction hearing 9:00 a.m., <b>Marshall, Texas.</b>
<b>January 17, 2007</b>	Comply with P.R. 4-5(c).
<b>January 10, 2007</b>	Comply with P.R. 4-5(b).
<b>December 27, 2006</b>	Comply with P.R. 4-5(a).
<b>December 4, 2006</b>	Discovery deadline-claims construction issues
<b>December 11, 2006</b>	Respond to Amended Pleadings
<b>November 27, 2006</b>	Amend Pleadings <b>(It is not necessary to file a Motion for Leave to Amend before the deadline to amend pleadings except to the extent the amendment seeks to add a new patent in suit. It is necessary to file a Motion for Leave to Amend after November 27, 2006).</b>
<b>November 9, 2006</b>	Comply with P.R. 4-3.
<b>October 10, 2006</b>	Comply with P.R. 4-2.
<b>July 7, 2006</b>	Privilege Logs to be exchanged by parties (or a letter to the Court stating that there are no disputes as to claims of privileged documents).
<b>September 20, 2006</b>	Comply with P.R. 4-1.
<b>June 16, 2006</b>	Comply with P.R. 3-3.
<b>June 1, 2006</b>	Join Additional Parties.
<b>May 12, 2006</b>	Comply with P.R. 3-1.

IT IS ORDERED that the Court will appoint a mediator in the above referenced case, as the parties have been unable to agree.

IT IS FURTHER ORDERED that the Court will appoint a technical advisor in this case, as the parties have been unable to agree.

### OTHER LIMITATIONS

1. All depositions to be read into evidence as part of the parties' case-in-chief shall be EDITED so as to exclude all unnecessary, repetitious, and irrelevant testimony; ONLY those portions which are relevant to the issues in controversy shall be read into evidence.
2. The Court will refuse to entertain any motion to compel discovery filed after the date of this Order unless the movant advises the Court within the body of the motion that counsel for the parties have first conferred in a good faith attempt to resolve the matter. See Eastern District of Texas Local Rule CV-7(h).
3. The following excuses will not warrant a continuance nor justify a failure to comply with the discovery deadline:
  - (a) The fact that there are motions for summary judgment or motions to dismiss pending;
  - (b) The fact that one or more of the attorneys is set for trial in another court on the same day, unless the other setting was made prior to the date of this order or was made as a special provision for the parties in the other case;
  - (c) The failure to complete discovery prior to trial, unless the parties can demonstrate that it was impossible to complete discovery despite their good faith effort to do so.

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

<b>REMBRANDT TECHNOLOGIES, LP</b>	§	
<b>V.</b>	§	
<b>COMCAST CORPORATION, ET AL.</b>	§	<b>CIVIL NO. 2:05-CV-443(TJW)</b>
	§	

**MODIFIED DOCKET CONTROL ORDER**

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<sup>1</sup> The parties are directed to Local Rule CV-7(d), which provides in part that "[i]n the event a party fails to oppose a motion in the manner prescribed herein the court will assume that the party has no opposition." Local Rule CV-7(e) provides that a party opposing a motion has **12 days, in addition to any added time permitted under Fed. R. Civ. P. 6(e)**, in which to serve and file a response and any supporting documents, after which the court will consider the submitted motion for decision.

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<b>January 10, 2007</b>	Comply with P.R. 4-5(b).
<b>December 27, 2006</b>	Comply with P.R. 4-5(a).
<b>December 4, 2006</b>	Discovery deadline-claims construction issues
<b>December 11, 2006</b>	Respond to Amended Pleadings
<b>November 27, 2006</b>	Amend Pleadings <b>(It is not necessary to file a Motion for Leave to Amend before the deadline to amend pleadings except to the extent the amendment seeks to add a new patent in suit. It is necessary to file a Motion for Leave to Amend after November 27, 2006).</b>
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<b>October 10, 2006</b>	Comply with P.R. 4-2.
<b>July 7, 2006</b>	Privilege Logs to be exchanged by parties (or a letter to the Court stating that there are no disputes as to claims of privileged documents).
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<b>June 1, 2006</b>	Join Additional Parties.
<b>May 12, 2006</b>	Comply with P.R. 3-1.

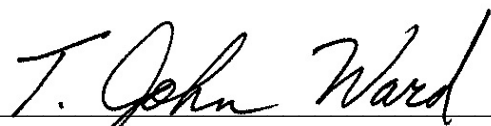
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2. The Court will refuse to entertain any motion to compel discovery filed after the date of this Order unless the movant advises the Court within the body of the motion that counsel for the parties have first conferred in a good faith attempt to resolve the matter. See Eastern District of Texas Local Rule CV-7(h).
3. The following excuses will not warrant a continuance nor justify a failure to comply with the discovery deadline:
  - (a) The fact that there are motions for summary judgment or motions to dismiss pending;
  - (b) The fact that one or more of the attorneys is set for trial in another court on the same day, unless the other setting was made prior to the date of this order or was made as a special provision for the parties in the other case;
  - (c) The failure to complete discovery prior to trial, unless the parties can demonstrate that it was impossible to complete discovery despite their good faith effort to do so.

SIGNED this 3rd day of October, 2006.

  
\_\_\_\_\_  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

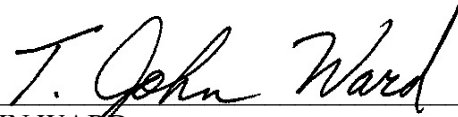
REMBRANDT TECHNOLOGIES, LP	§	
Plaintiff,	§	
	§	
v.	§	Civil Action No. 2:05-CV-443 [TJW]
	§	
COMCAST CORPORATION, COMCAST	§	
COMMUNICATIONS, LLC, and COMCAST	§	JURY -- FILED UNDER SEAL
OF PLANO, LP	§	
Defendants.	§	

**ORDER GRANTING FISH & RICHARDSON, P.C.'S UNOPPOSED MOTION FOR  
LEAVE TO EXCEED THE PAGE LIMIT REGARDING ITS OPPOSITION TO  
MOTION TO DISQUALIFY AND MEMORANDUM OF LAW IN SUPPORT**

Before the Court is Fish & Richardson, P.C.'s Unopposed Motion for Leave to Exceed the Page Limit Regarding its Opposition to Motion to Disqualify and Memorandum of Law in Support. Having considered the Motion, the Court finds it is meritorious and should be GRANTED.

IT IS THEREFORE ORDERED, that Fish & Richardson, P.C. is authorized to exceed the usual limits and to file, under seal, its Opposition to Motion to Disqualify and Memorandum of Law in Support.

SIGNED this 3rd day of October, 2006.

  
T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

**SEALED DOCUMENT**



UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**PLAINTIFF'S AGREED MOTION FOR EXTENSION OF  
TIME TO FILE P.R. 4-2 DISCLOSURES**

Plaintiff Rembrandt Technologies, LP respectfully moves the Court for an extension of time to file its P.R. 4-2 disclosures. Currently, Plaintiff's P.R. 4-2 disclosures are due October 10, 2006. With counsel for Defendants' agreement, Plaintiff requests an extension of time to file its disclosures until October 13, 2006. Plaintiff requests that the Court grants this motion and extend the deadline for Plaintiff to file its P.R. 4-2 disclosures until October 13, 2006.

Respectfully Submitted,

By: /s/ Otis Carroll ( with permission Collin Maloney)

Otis Carroll  
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James Patrick Kelley  
State Bar No. 11202500  
Collin Maloney  
State Bar No. 00794219  
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**ATTORNEYS FOR PLAINTIFF**

CERTIFICATE OF CONFERENCE

Pursuant to Local Rule CV-7(h), movant has contacted opposing counsel and was informed that opposing counsel agrees to the relief requested herein.

/s/ Collin Maloney

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing document was served on all parties via electronic delivery or U.S. mail this 10<sup>th</sup> day of October, 2006.

/s/ Collin Maloney



UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**ORDER GRANTING MOTION TO EXTEND TIME TO FILE**

Before the Court is Plaintiff Rembrandt Technologies, LP's Motion to Extend Time to file its P.R. 4-2 disclosures. Having considered the matter, and that it is agreed, the Court GRANTS the motion and extends Plaintiff's time to file P.R. 4-2 disclosures until October 13, 2006.

SEALED  
DOCUMENT

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**JOINT MOTION TO AMEND THE PROTECTIVE ORDER**

Pursuant to paragraph 24 of the Court's Protective Order (Docket No. 53), the parties jointly move to amend the Protective Order as set forth in the attached Stipulation and Proposed Order. In support thereof, the parties state that the proposed amendments will facilitate the review of source code produced by third parties in connection with this litigation.

WHEREFORE, the parties request that the Court approve the attached Stipulation and Proposed Order.

Dated: October 20, 2006

Respectfully submitted,

/s/ Otis Carroll

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/s/ Eric H. MacMichael

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Counsel for Defendants  
COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP



**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on September 21, 2006 to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by FedEx overnight delivery.

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Plano, LP

/s/ Otis Carroll

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**REMBRANDT TECHNOLOGIES, LP**

**Civil Action No. 2:05-cv-00443-TJW**

**v.**

**COMCAST CORPORATION;  
COMCAST CABLE  
COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP**

**JOINT STIPULATION AND PROPOSED ORDER  
TO AMEND THE PROTECTIVE ORDER**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”) and Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP (“Comcast”) hereby stipulate and jointly request, pursuant to paragraph 24 of the Court’s Protective Order (Docket No. 53) that the Protective Order be amended as set forth below.

1. Replace paragraph 4(d) with the following:

(d) source code escrow agents, photocopy, document imaging and database services, consultants retained by counsel to set up, maintain and/or operate computer systems, litigation databases or to convert data for inclusion in such databases.

2. Replace paragraphs 7 and 7(a) with the following:

In addition to the terms set forth in paragraphs 4 through 6 herein governing the disclosure of Confidential Information or Highly Confidential Information, information or materials that contain, embody, or otherwise reflect source code of a party or third party subpoenaed for such source code in this litigation shall be provided the following further protections.

(a) Any and all such source code, except for hard (non-electronic) copies, shall be stored and viewed only at the facilities of one (1) agreed-

upon source code custodian ("Source Code Custodian"). The source code shall initially be deposited at a facility in the Los Angeles metropolitan region. After 45 days, the source code shall be transferred to a facility in the Dallas metropolitan region. Where source code is deposited by a third party, this subparagraph may be modified by written agreement of the parties and the third party depositing source code; in all other cases, this subparagraph may be modified by written agreement of the parties.

The parties further stipulate and request that all references to "Producing Party" in the Protective Order be construed to include third parties producing documents in this litigation.

Dated: October 20, 2006

SO STIPULATED:

/s/ Otis Carroll

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Counsel for Plaintiff  
REMBRANDT TECHNOLOGIES, LP

/s/ Eric H. MacMichael

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Counsel for Defendants  
COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

**IT IS SO ORDERED.**

## UNITED STATES DISTRICT COURT

EASTERN

DISTRICT OF

TEXAS

REMBRANDT TECHNOLOGIES, LP  
V.  
COMCAST CORPORATION, ET AL.

## NOTICE

CASE NUMBER: 2:05-CV-443(TJW)

TYPE OF CASE:

☒ CIVIL☐ CRIMINAL

**X TAKE NOTICE** that a proceeding in this case has been set for the place, date, and time set forth below:

PLACE  
United States District Court  
100 E. Houston Street  
**MARSHALL, TX 75670**

ROOM NO.  
Judge T. John Ward's Courtroom  
DATE AND TIME  
October 30, 2006 @ 2:30 p.m.

TYPE OF PROCEEDING

## HEARING ON PLAINTIFF'S MOTION TO COMPEL

**TAKE NOTICE** that a proceeding in this case has been continued as indicated below:

PLACE	DATE AND TIME PREVIOUSLY SCHEDULED	CONTINUED TO DATE AND TIME
-------	------------------------------------	----------------------------

October 23, 2006  
DATE

David J. Maland  
US MAGISTRATE JUDGE OR CLERK OF COURT

Sonja H. Dupree  
(BY) DEPUTY CLERK

TO: ALL COUNSEL OF RECORD

**ACKNOWLEDGMENT**

**NOTICE TO COUNSEL:** Please sign in the space provided below and return to the court by facsimile, **(903) 935-2295**, within three (3) days of your receipt of the enclosed notice.

**I acknowledge receipt of the indicated notice on the date shown below.**

Case No. \_\_\_\_\_

Signature of Atty. \_\_\_\_\_  
Date

Print Name of Atty. \_\_\_\_\_

Counsel for \_\_\_\_\_  
(Name of Party)

Type of Proceeding: \_\_\_\_\_  
(e.g., Scheduling Conference)

Date of Proceeding: \_\_\_\_\_

Time of Proceeding: \_\_\_\_\_

Location of Proceeding: \_\_\_\_\_

## UNITED STATES DISTRICT COURT

EASTERN

DISTRICT OF

TEXAS

REMBRANDT TECHNOLOGIES, LP  
V.  
COMCAST CORPORATION, ET AL.

## NOTICE

CASE NUMBER: 2:05-CV-443(TJW)

TYPE OF CASE:

☒ CIVIL☐ CRIMINAL

**TAKE NOTICE** that a proceeding in this case has been set for the place, date, and time set forth below:

PLACE

ROOM NO.

DATE AND TIME

TYPE OF PROCEEDING

**PLEASE NOTE THAT THE HEARING SET FOR 10/30/06 HAS BEEN CANCELLED.**

**TAKE NOTICE** that a proceeding in this case has been continued as indicated below:

PLACE

DATE AND TIME PREVIOUSLY  
SCHEDULEDCONTINUED TO DATE  
AND TIMEDavid J. Maland

US MAGISTRATE JUDGE OR CLERK OF COURT

October 24, 2006

DATE

Sonja H. Dupree

(BY) DEPUTY CLERK

TO: ALL COUNSEL OF RECORD



**ACKNOWLEDGMENT**

**NOTICE TO COUNSEL:** Please sign in the space provided below and return to the court by facsimile, (903) 935-2295, within three (3) days of your receipt of the enclosed notice.

**I acknowledge receipt of the indicated notice on the date shown below.**

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Signature of Atty. \_\_\_\_\_  
Date

Print Name of Atty. \_\_\_\_\_

Counsel for \_\_\_\_\_  
(Name of Party)

Type of Proceeding: \_\_\_\_\_  
(e.g., Scheduling Conference)

Date of Proceeding: \_\_\_\_\_

Time of Proceeding: \_\_\_\_\_

Location of Proceeding: \_\_\_\_\_

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

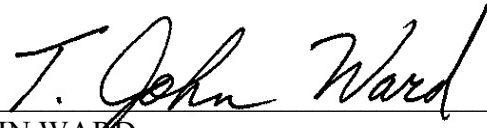
COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**ORDER GRANTING MOTION TO EXTEND TIME TO FILE**

Before the Court is Plaintiff Rembrandt Technologies, LP's Motion to Extend Time to file its P.R. 4-2 disclosures. Having considered the matter, and that it is agreed, the Court GRANTS the motion and extends Plaintiff's time to file P.R. 4-2 disclosures until October 13, 2006.

SIGNED this 25th day of October, 2006.



T. JOHN WARD

UNITED STATES DISTRICT JUDGE

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**REMBRANDT TECHNOLOGIES, LP**

**Civil Action No. 2:05-cv-00443-TJW**

**v.**

**COMCAST CORPORATION;  
COMCAST CABLE  
COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP**

**JOINT STIPULATION AND ORDER  
TO AMEND THE PROTECTIVE ORDER**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”) and Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP (“Comcast”) hereby stipulate and jointly request, pursuant to paragraph 24 of the Court’s Protective Order (Docket No. 53) that the Protective Order be amended as set forth below.

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upon source code custodian ("Source Code Custodian"). The source code shall initially be deposited at a facility in the Los Angeles metropolitan region. After 45 days, the source code shall be transferred to a facility in the Dallas metropolitan region. Where source code is deposited by a third party, this subparagraph may be modified by written agreement of the parties and the third party depositing source code; in all other cases, this subparagraph may be modified by written agreement of the parties.

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Dated: October 20, 2006

SO STIPULATED:

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REMBRANDT TECHNOLOGIES, LP

/s/ Eric H. MacMichael

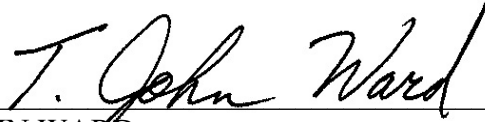
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Facsimile: 415-397-7188

Counsel for Defendants  
COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

**IT IS SO ORDERED.**

SIGNED this 25th day of October, 2006.

A handwritten signature in black ink, reading "T. John Ward", written over a horizontal line.

T. JOHN WARD  
UNITED STATES DISTRICT JUDGE

FEE PAID

\$25.00

Appendix K

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION  
APPLICATION TO APPEAR PRO HAC VICE

Revised: 12/2/03  
FILED CLERK  
DISTRICT COURT  
2006 OCT 24 PM 3:42  
TEXAS EASTERN

- 1 This application is being made for the following: Case # 2:05-CV-00443-TJW  
Style: Rembrandt Technologies, L.P. v. Comcast Communications, et al.
- 2 Applicant is representing the following party/ies:  
Rembrandt Technologies, L.P.
- 3 Applicant was admitted to practice in Texas (state) on November 3, 1995 (date)
- 4 Applicant is in good standing and is otherwise eligible to practice law before this court
- 5 Applicant is not currently suspended or disbarred in any other court.
- 6 Applicant has has not had an application for admission to practice before another court denied (please circle appropriate language) If so, give complete information on a separate page
- 7 Applicant has has not ever had the privilege to practice before another court suspended (please circle) If so, give complete information on a separate page
- 8 Applicant has has not been disciplined by a court or Bar Association or committee thereof that would reflect unfavorably upon applicant's conduct, competency or fitness as a member of the Bar (please circle) If so, give complete information on a separate page
- 9 Describe in detail on a separate page any charges, arrests or convictions for criminal offense(s) filed against you. Omit minor traffic offenses NONE.
- 10 There are no pending grievances or criminal matters pending against the applicant
- 11 Applicant has been admitted to practice in the following courts:  
W.D. Tex.; N.D. Tex.
- 12 Applicant has read and will comply with the Local Rules of the Eastern District of Texas, including Rule AT-3, the "Standards of Practice to be Observed by Attorneys."
- 13 Applicant has included the requisite \$25 fee (see Local Rule AT-1(d)).
- 14 Applicant understands that he/she is being admitted for the limited purpose of appearing in the case specified above only.

Application Oath:

I, Michael Chibib do solemnly swear (or affirm) that the above information is true; that I will discharge the duties of attorney and counselor of this court faithfully; that I will demean myself uprightly under the law and the highest ethics of our profession; and that I will support and defend the Constitution of the United States

Date 10/23/2006

Signature

Michael Chibib

Name (please print) Michael Chibib  
State Bar Number 00793497 TX  
Firm Name: Fish & Richardson, P.C.  
Address/P.O. Box: 111 Congress Avenue, Suite 810  
City/State/Zip: Austin, Texas 78701  
Telephone #: 512-472-5070  
Fax #: 512-320-8935  
E-mail Address: chibib@fr.com  
Secondary E-Mail Address: \_\_\_\_\_

Applicant is authorized to enter an appearance as counsel for the party/parties listed above. This application has been approved for the court this 24 day of Oct, 2006

David J Maland, Clerk  
U.S. District Court, Eastern District of Texas

By \_\_\_\_\_

Deputy Clerk

LOGIN: mc6987

PASSWORD: nece4byj



**SEALED**

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS, LLC; AND  
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

ORAL HEARING REQUESTED

**EXPEDITED MOTION FOR CLARIFICATION REGARDING P.R. 3-1(h)**  
**FILED BY REMBRANDT TECHNOLOGIES, LP**

**I. INTRODUCTION**

On May 12, 2006, Plaintiff Rembrandt Technologies, LP (“Rembrandt”) served very detailed infringement contentions on Defendants (collectively “Comcast”). Despite the comprehensive nature of Rembrandt’s contentions, Comcast, citing P.R. 3-1(h), asserts that Rembrandt must supplement its infringement contentions over thirty times over the course of this case—every time a new batch of source code is produced by a third party in response to a subpoena. Because such a requirement would turn the purpose of the local patent rules on its head, morphing infringement contentions into moving targets, Rembrandt respectfully submits that this Court clarify Patent Rule 3-1(h), to confirm that Rembrandt need not supplement its Preliminary Infringement Contentions merely to cite evidence consistent with its previously served contentions or, alternatively, may supplement within 30 days of receipt of all source code.

The parties have agreed to brief this issue expeditiously. Accordingly, Defendants will file a response brief on Thursday, November 9, 2006. A reply, if any, would be filed Monday, November 13, and a sur-reply, if any, would be filed on Thursday, November 16. Rembrandt believes an oral hearing may be beneficial and therefore requests such.

## II. BACKGROUND

In this patent infringement case, plaintiff Rembrandt Technologies, LP (“Rembrandt”) alleges that the defendants (collectively “Comcast”) infringe four of Rembrandt’s patents by providing certain services over their cable network. Specifically, Rembrandt contends that Comcast infringes Rembrandt’s U.S. Patent Nos. 4,937,819, 5,719,858, and 5,852,631 patents (the “’819 patent,” the “’858 patent,” and the “’631 patent,” respectively) by providing cable internet service, and that Comcast infringes Rembrandt’s U.S. Patent No. 5,243,627 (the “’627 patent”) through Comcast’s reception of digital television signals, for later retransmission over Comcast’s cable network.

Rembrandt served its Preliminary Infringement Contentions (attached as Exhibit A) on May 12, 2006. In those contentions, Rembrandt presented a thorough analysis of Comcast’s infringement. Rembrandt’s contentions were supported by citations to two industry standards—the Data Over Cable Service Interface (“DOCSIS”) standard, for the ’819, ’858, and ’631 patents, and the Advanced Television Systems Committee (“ATSC”) standard for the ’627 patent. Comcast has since admitted that its cable modem products are compliant with the DOCSIS standard and its digital television receivers are compliant with the ATSC standard. (*See* Defendant Comcast Corporation’s Responses to Plaintiff Rembrandt Technology, Inc.’s First Set of Interrogatories (attached as Exhibit B) at 17 & 18.). Comcast has never asserted that Rembrandt’s contentions do not comply with P.R. 3-1, nor has Comcast contended that Rembrandt’s contentions fail to provide notice to Comcast of how Rembrandt believes Comcast is infringing.

Rembrandt requested that Comcast produce all source code for the Accused Instrumentalities identified in Rembrandt’s Preliminary Infringement Contentions. In response, Comcast stated that no source code was in its possession, custody, or control. Comcast asserted

that each supplier of each of the devices used on Comcast's network retained control over the source code of that device. Rembrandt was therefore required to serve over thirty subpoenas on these suppliers, seeking, among other documents, the source code to the devices used on Comcast's network.

Nearly every supplier objected to Rembrandt's subpoena. Rembrandt, however, secured an agreement in principle from each supplier to produce source code. To date, three suppliers, Samsung Telecommunications America LLP, Arris Group, Inc., and Wegener Communications, Inc., have in fact produced source code for Rembrandt's review.<sup>1</sup> This code was made available for review on October 10, 2006.<sup>2</sup>

Rembrandt immediately began its review of the source code that was available. Based on the information contained in this source code, Rembrandt determined that the code was consistent with its earlier filed infringement contentions. Rembrandt also discovered that the chips used by many of these devices are supplied by separate chip manufacturers, who have additional source code that may not be in the possession, custody, or control of the device manufacturers. Rembrandt promptly served subpoenas on these second-tier chip suppliers as well.

On November 1, 2006, Rembrandt's counsel wrote to Comcast's counsel, noting that Rembrandt's review of source code confirmed Rembrandt's infringement theory, and that, based on Rembrandt's understanding, it was not required to supplement its infringement contentions in these circumstances. Rembrandt noted that, since its infringement contentions were sufficiently detailed, any citation to source code would be merely a citation of evidence supporting Rembrandt's infringement contentions, and no rule requires Rembrandt to cite all evidence

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<sup>1</sup> A fourth supplier, Terayon Communication Systems, Inc., also produced source code, but apparently for the wrong devices.

<sup>2</sup> October 10, 2006 was the day that the escrow facility, required by this Court's Protective Order, was operational and ready to allow source code review.

supporting its contentions. (*See* Exhibit C.) Comcast replied on November 3, 2006 by arguing that Rembrandt should, in fact, be required to cite source code from third parties as evidence of infringement in its preliminary infringement contentions. (*See* Exhibit D.) The parties also sought to resolve this issue in a teleconference held on November 6, 2006, but were unable to do so. This motion followed.

### III. ARGUMENT

#### A. This Court Should Not Require Rembrandt to Supplement Its Infringement Contentions Over Thirty Times Merely to Cite Evidence of Infringement

##### 1. Where Comcast Has Conceded That Its Devices Comport With the Standards, Rembrandt Should Not Be Required to Cite Evidence Thereof in its Infringement Contentions

To date Rembrandt has identified over thirty suppliers who may have source code relevant to this litigation. While Rembrandt intends to supplement its contentions if the production of source code requires a change in the contentions, such supplementation should not be required where it would merely be a citation to evidence that supports Rembrandt's existing contentions.

In its original infringement contentions, Rembrandt explained—in great detail—why a device compliant with the ATSC or DOCSIS standards would infringe the patents-in-suit.<sup>3</sup> In an interrogatory response, Comcast admitted that its digital televisions comply with the ATSC standard, and its cable modem devices comply with the DOCSIS standard. (*See* Exhibit B at 17 & 18.) To require Rembrandt to now supplement its infringement contentions in response to each new production of source code, merely to prove what Comcast has already admitted, would be wasteful in the extreme.<sup>4</sup> Moreover, each such supplementation, under this Court's P.R. 3-

<sup>3</sup> For the reasons set forth below, Rembrandt does not believe that these contentions preclude Rembrandt from introducing source code evidence that Comcast infringes the patents-in-suit through its use of certain devices, without reference to the standards, if necessary.

<sup>4</sup> Rembrandt would, however, supplement its infringement contentions if its review of source code revealed a need to supplement.

1(f), could trigger a new set of Preliminary Invalidity Contentions, a situation that would result in substantial prejudice to Rembrandt.

In the circumstances of this case, source code should be treated like any other evidence: where it provides only supplemental evidence of infringement, it need not be cited in infringement contentions. If a plaintiff's infringement contentions provide sufficient notice to a defendant of why the defendant has infringed, the plaintiff need not identify all evidence supporting its infringement case in repeated supplemental infringement contentions, whether the additional evidence be deposition testimony, product manuals, or source code. No rule requires identification of all evidence supporting a party's infringement contentions, and there is no reason to believe that this Court created such a requirement solely with respect to source code in its P.R. 3-1(h). Rembrandt submits that the rules permit it to go forward with its infringement case, relying exclusively on source code evidence at trial, if need be, so long as Rembrandt's substantive contentions at trial are reflected in Rembrandt's infringement contentions.

Comcast's position, if accepted, would impose a disproportionately high burden on a plaintiff in a case where an Accused Instrumentality is software-based. Comcast contends that if an element is satisfied by software, a plaintiff must identify the source code for that software with specificity, even if a plaintiff has already sufficiently communicated the bases for its infringement contentions in its P.R. 3-1 statement. Moreover, Comcast argues that a plaintiff is not permitted to rely on any code other than that which is specifically identified. But Comcast cannot explain why this higher burden should apply to cases where a claim limitation is met by software, but not to any other accused products.

Comcast's position is particularly untenable in a case such as this one, where some devices may implement the claim elements in software, whereas others may implement the same claim element in hardware. Indeed, some devices may not perform a given claim limitation

except when used as specifically configured by Comcast. In some instances, the implementation may be in a fourth category, such as a field-programmable gate array—a device that is not clearly hardware *or* software. Comcast does not explain why Rembrandt should be required to supplement its infringement contentions with respect to devices that satisfy a claim element in software, whereas other devices that satisfy a claim element by virtue of their configuration, their hardware, or some other mechanism, do not trigger a supplementation requirement.

Patent Rule 3-1(h) is a rule implemented by the Court in an effort to resolve the dispute wherein a plaintiff cannot otherwise comply with P.R. 3-1 without the production of defendants' source code. As this Court noted, "parties claiming patent infringement do not typically have access to an opposing party's source code before filing suit" (Docket No. 28 at 19), precluding a plaintiff from providing specific infringement contentions. Specifically, it applies in a situation where a party cannot "accurately indicate where the infringement occurs without the source code." *American Video Graphics, L.P. v. Electronic Arts, Inc.*, 359 F.Supp.2d 558, 560 (E.D. Tex. 2005.) Meanwhile, "parties opposing a claim for patent infringement are hampered in their ability to prepare a defense *absent specific infringement contentions* from the party asserting claims of patent infringement." (Docket No. 28 at 19 (emphasis added).) Here, however, Rembrandt *has* served specific infringement contentions. Rembrandt should be permitted to bring before the jury all admissible evidence, including deposition and trial testimony, manuals, diagrams, and source code. To hold otherwise would result in a rule that punishes plaintiffs and requires a higher discovery and admissibility standard for source code.

Ultimately, the purpose of the patent local rules is to provide a party with early, sufficient notice of the basis for the other party's contentions. "The Patent Rules require a party asserting claims of patent infringement to take a firm position in the litigation as it relates to infringement early on in the case." (Appendix C to Discovery Order, Docket No. 28, at 19.) In seeking to

require near-continuous supplementation of Rembrandt's infringement contentions, Comcast ignores this underlying purpose and instead would turn the contentions into an ongoing make-work exercise. Rembrandt should be permitted to supplement its infringement contentions if source code requires a substantive change in the contentions. Otherwise, Rembrandt should not be required to supplement its contentions merely to provide additional, cumulative evidence of Comcast's infringement.

**B. If Rembrandt Is Required to Cite Source Code Evidence, This Court Should Confirm that the Text of its Rule Permits a Single Supplementation Thirty Days After All Source Code Has Been Produced**

This Court's P.R. 3-1(h) states:

If a party claiming patent infringement asserts that a claim element is a software limitation, the party need not comply with P.R. 3-1 for those claim elements until *30 days after source code for each Accused Instrumentality is produced* by the opposing party. *Thereafter*, the party claiming patent infringement shall identify, on an element-by-element basis for each asserted claim, what source code of each Accused Instrumentality allegedly satisfies the software limitations of the asserted claim elements.

(Docket No. 28 at 19-20 (emphasis added).) Thus, the party claiming patent infringement need not identify what source code satisfies the software limitations of an asserted claim element until 30 days after source code for *each* Accused Instrumentality is produced.

In this case, only three of over thirty third party suppliers have produced source code. If this Court were to require Rembrandt to supplement its infringement contentions thirty days after *any* source code is produced, Rembrandt would potentially be required to supplement its contentions thirty or more times, a process that would become highly burdensome, while serving little purpose.

If this Court holds that Rembrandt must supplement its infringement contentions by providing a citation to source code evidencing Comcast's infringement, this Court should not require repeated supplementations, but rather should permit Rembrandt to supplement a single time, thirty days after all source code has been produced.



#### **IV. CONCLUSION**

For the foregoing reasons, Rembrandt respectfully requests that this Court order that Rembrandt need not submit supplemental infringement contentions merely to cite source code evidence supporting Rembrandt's previous infringement contentions, or, alternatively, that supplemental contentions may be submitted 30 days after receipt of all source code.

Dated: November 6, 2006

Respectfully submitted,

FISH & RICHARDSON P.C.

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on November 6, 2006 to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Local Rule CV-5(a)(3).

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21470909

# EXHIBIT A PART 1

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION, COMCAST  
CABLE COMMUNICATIONS, LLC, and  
COMCAST OF PLANO, LP,

Defendant.

Case No. 2:05-CV-443 (TJW)

Jury Trial Demanded

**PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND  
PRELIMINARY INFRINGEMENT CONTENTIONS**

Preliminary Infringement Analysis for U.S. Patent No. 5,243,627

**A. Identification of Infringed Claims**

Pursuant to Local Patent Rule 3-1(a), Rembrandt hereby identifies claims 9 and 19 of U.S. Patent No. 5,243,627 (“the ‘627 patent”) as being infringed by defendants.

**B. Identification of Accused Instrumentalities**

Defendants infringe claims 9 and 19 of the ‘627 patent by their use of digital television receivers that are compliant with the Digital Television Standard, published by the Advanced Television Systems Committee, including the original standard published on September 15, 1995, and all subsequent revisions, including Revision D with Amendment No. 1, published on July 27, 2005 (collectively the “ATSC Digital TV Standard.”) It is believed that all digital television receivers capable of receiving terrestrial over-the-air digital television signals broadcast in the United States by FCC licensed television stations are compliant with the ATSC Digital TV Standard.

Accordingly, pursuant to Local Patent Rule 3-1(b), plaintiff identifies as the Accused Instrumentality any use by defendants of digital television receivers to receive terrestrial over-the-air digital television signals broadcast in the United States by FCC licensed television stations, including but not limited to reception of such signals for the purpose of redistribution of the programming of such stations to subscribers of the cable systems owned and/or operated by defendants. Plaintiffs do not currently know the names or model numbers of the digital television receivers used by defendants.

**C. Preliminary Infringement Claim Charts**

Pursuant to Local Patent Rule 3-1(c), plaintiff provides the following claim chart, attached as Exhibit A, that explains how digital television receivers that are compliant with the ATSC Digital Television Standard necessarily infringe the asserted claims. The

citations to the ATSC Digital Television Standard are included for reference, but should not be construed as limiting.

**D. Reliance on the Doctrine of Equivalents**

Pursuant to Patent Local Rule 3-1(d), Plaintiff presently contends that Defendant's use of digital television receivers that are compliant with the ATSC Digital Television Standard infringes the identified claims, literally, or by equivalents, as set forth in the claim chart attached as Exhibit A. In the event that claim construction or discovery determinations or facts of which plaintiff is not currently aware suggest alternative explanations of such infringement, plaintiff reserves the right to provide such explanations in a supplemental disclosure. Plaintiff has included certain contentions regarding doctrine of equivalents, but reserves the right to modify or supplement any such contentions to the extent made relevant by the Court's claim construction ruling.

In the event that discovery reveals that the Accused Instrumentalities utilized by defendants implement the claimed invention in software, plaintiff reserves the right, pursuant to Judge Ward's modification to the Local Patent Rules, Rule 3-1(h), to provide supplemental infringement contentions within 30 days of the production of source code for such software, should such supplemental contentions be necessary.

**E. Statement of Earliest Priority Date**

Pursuant to Patent Local Rule 3-1(e), Plaintiff states that the earliest priority date all claims of the '627 Patent are entitled to is the August, 22, 1991 filing date of the '627 patent.

**F. Identification of Instrumentalities Embodying the Patent**

Pursuant to Patent Local Rule 3-1(f), Plaintiff states that it does not manufacture any products that embody the claims of the '627 Patent.

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on June 21, 2006, a true and correct copy of this document was served on the following attorneys of record at the address and in the manner indicated:

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## **EXHIBIT A**

9.	Receiver apparatus for recovering information	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Instrumentalities are television receivers that recover information from digital TV signals.</p>
	from a received stream of trellis encoded signal points,	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Instrumentalities are receivers that receive digital television signals transmitted in compliance with the ATSC Standard. The ATSC Standard provides that terrestrial broadcast signals be trellis encoded to generate a stream of trellis encoded VSB signal points. (<i>See, e.g.</i>, ATSC Digital TV Standard (original), pp. 51-55; Revision B, pp. 56-59; Revision C, pp. 63-67; Revision D, pp. 67-71.) The receivers, in turn, must demodulate the received VSB signals to generate a stream of trellis encoded VSB signal points.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing information to a receiver), in</p>

	<p>substantially the same way (using convolutional encoders to generate a sequence of values that control the output of a digital modulator), to achieve substantially the same result (encoding signals for transmission that may be received by a receiver and demodulated to provide digital values), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>said signal points having been transmitted to said receiver apparatus by transmitter apparatus which generates said signal points by generating a plurality of streams of trellis encoded channel symbols in response to respective portions of said information,</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>A transmitter compliant with the ATSC Standard is required to have twelve trellis encoders operating in parallel, or an equivalent circuit or software module. (See ATSC Standard Figure D8, p. 57 and associated text.) Each trellis encoder receives a stream of 8-bit Reed-Solomon symbols generated by an upstream Reed-Solomon encoder. (See, e.g., ATSC Digital TV Standard (original) Figure 1, p. 47, Figure 5, p. 51, Table 2, p. 54 and p 50; Revision B, Figure D1, p. 51, Figure D5, p. 55, Table D2, p. 59, and pp. 54-55; Revision C, Figure D1, p. 58, Figure D5, p. 62, Table D2, p. 66 and pp. 61-62; Revision D, Figure D5.1, p. 60, Figure D5.2, p. 61, Figure D5.6, p. 66, Table D5.2, p. 70, and pp. 65-66.) Each trellis encoder trellis encodes each received Reed-Solomon symbol in response to the symbols to generate a trellis encoded channel symbol. As each trellis encoder generates successive trellis encoded channel symbols, it generates a stream of trellis encoded channel symbols. The twelve trellis encoders therefore generate a plurality of streams of trellis encoded channel symbols. ATSC compliant</p>

	<p>receivers must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (receiving a signal including a number of streams of encoded information), in substantially the same way (receiving signals transmitted using multiple convolutional encoders or an emulation thereof), to achieve substantially the same result (generating respective streams of encoded data in response to respective portions of an input stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
each of said channel symbols being comprised of a plurality of signal points,	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>Each trellis encoded channel symbol encoded by one of the twelve trellis encoders in an ATSC compliant transmitter comprises four Vestigial Sideband (VSB) values (signal points), that are provided to the VSB modulator. (See, e.g. ATSC Digital TV Standard (original), pp. 51-52; Revision B, pp. 56-57; Revision C, pp. 63-64; Revision D; pp. 67-69.) An ATSC compliant receiver must be capable of recovering information</p>

	<p>encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing an encoded signal from a transmitter that uses multiple convolutional encoders or an emulation thereof), in substantially the same way (generating, for respective input values processed by a convolutional encoder, multiple output values for controlling a digital modulator), to achieve substantially the same result (producing multiple values for controlling the output of a digital modulator), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>and by interleaving the signal points of said generated channel symbols to form said stream of trellis encoded signal points,</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The signal points output by respective ones of the twelve trellis encoders in an ATSC compliant transmitter are interleaved by an output multiplexer that outputs, for a given segment, one signal point from each trellis encoder every twelve time periods, thus forming a stream of trellis encoded signal points. (See, e.g., ATSC Digital TV Standard (original), Table 2, p. 54; Revision B,</p>

	<p>Table D2, p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (intermixing values for a digital modulator), in substantially the same way (arranging the output values from a single encoder in a pre-determined manner), to achieve substantially the same result (a stream of intermixed values in which values from multiple encoders are intermixed together according to the prearranged pattern), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
said interleaving being carried out in such a way that the signal points of each channel symbol are non-adjacent in said stream of trellis encoded signal points	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The signal points (VSB values) from each trellis encoded channel symbol (trellis encoded Reed-Solomon symbol) in an ATSC compliant transmitter are non-adjacent in the stream of trellis encoded signal points. (See, e.g., ATSC Digital TV Standard (original), Table 2, p. 54; Revision B, Table D2,</p>

	<p>p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (separating the output values of a given convolutional encoder that correspond to a single input symbol), in substantially the same way (intermixing output values from respective convolutional encoders), to achieve substantially the same result (creating a stream of output values for controlling the input of a digital modulator, so that values corresponding to a single input symbol are spaced apart in the stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
and such that the signal points of adjacent symbols in any one of said channel symbol streams are non-adjacent in said stream of trellis encoded signal points,	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The signal points that make up adjacent trellis encoded channel symbols generated by any given trellis encoder in an ATSC compliant transmitter are themselves non-adjacent in the output stream. (See, e.g., ATSC Digital TV</p>



	<p>Standard (original), Table 2, p. 54; Revision B, Table D2, p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (separating the output values of a given convolutional encoder that correspond to adjacent input symbol to that encoder), in substantially the same way (intermixing output values from multiple respective convolutional encoders), to achieve substantially the same result (creating a stream of output values for controlling the input of a digital modulator, so that values corresponding to adjacent input symbols for a given convolutional encoder are spaced apart in the stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>said receiver apparatus comprising</p> <p>means for deinterleaving the interleaved signal points to recover said plurality of streams of trellis encoded channel symbols, and</p>	<p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features. ATSC Standard compliant receivers necessarily have deinterleaving circuitry or software that allocates received signal points to respective trellis decoder circuits or software modules, or an equivalent circuit or software module, thus recovering the twelve streams of trellis encoded channel symbols generated by the transmitter. (See, e.g., Guide to Use of the ATSC DTV</p>

	<p>Standard (published as Document A/54A by ATSC on December 4, 2003) at Figure 9.11, p. 99.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (forming streams of demodulated signal values), in substantially the same way (allocating the received signal points to respective trellis decoders or software modules), to achieve substantially the same result (streams of demodulated signal values), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
a distributed Viterbi decoder for recovering said information from the deinterleaved signal points.	<p>On information and belief, ATSC Standard compliant receivers necessarily have a distributed Viterbi decoder, or an equivalent circuit or software module, that recovers the originally encoded information encoded by the distributed trellis encoder described in the ATSC Standard. (See, e.g., Guide to Use of the ATSC DTV Standard (published as Document A/54A by ATSC on December 4, 2003) at Figure 9.11, p. 99.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused</p>

		<p>Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (processing separate streams of demodulated digital values), in substantially the same way (using separate instances of a maximum-likelihood algorithm), to achieve substantially the same result (recovering the previously encoded information), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
19.	19. A method for use in a receiver to recover information	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Instrumentalities are television receivers that recover information from digital TV signals utilizing the claimed method.</p>
	from a received stream of trellis encoded signal points,	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Instrumentalities are receivers that receive digital television signals transmitted in compliance with the ATSC Standard. The ATSC Standard provides that terrestrial broadcast signals be trellis encoded to generate a stream of trellis encoded VSB signal points. (See, e.g., ATSC Digital TV Standard (original), pp. 51-55; Revision B, pp. 56-59; Revision C, pp. 63-67; Revision D, pp. 67-71. The receivers, in turn, must demodulate the received VSB signals to generate a stream of trellis encoded</p>

	<p>VSB signal points.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing information to a receiver), in substantially the same way (using convolutional encoders to generate a sequence of values that control the output of a digital modulator), to achieve substantially the same result (encoding signals for transmission that may be received by a receiver and demodulated to provide digital values), as the recited limitation.</p>
<p>said signal points having been transmitted to said receiver apparatus by a method which includes the steps of</p> <p>generating a plurality of streams of trellis encoded channel symbols in response to respective portions of said information,</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>A transmitter compliant with the ATSC Standard is required to have twelve trellis encoders operating in parallel, or an equivalent circuit or software module. (See ATSC Standard Figure D8, p. 57 and associated text.) Each trellis encoder receives a stream of 8-bit Reed-Solomon symbols generated by an upstream Reed-Solomon encoder. (See, e.g., ATSC Digital TV Standard (original) Figure 1, p. 47, Figure 5, p. 51, Table 2, p. 54 and p 50; Revision B, Figure D1, p. 51, Figure D5, p. 55, Table D2, p. 59, and pp. 54-55; Revision C, Figure D1, p. 58, Figure D5, p. 62, Table D2, p. 66 and pp. 61-62; Revision D, Figure D5.1, p. 60, Figure D5.2, p. 61, Figure D5.6, p. 66, Table D5.2, p. 70, and pp. 65-66.) Each trellis encoder trellis encodes</p>

	<p>each received Reed-Solomon symbol in response to the symbols to generate a trellis encoded channel symbol. As each trellis encoder generates successive trellis encoded channel symbols, it generates a stream of trellis encoded channel symbols. The twelve trellis encoders therefore generate a plurality of streams of trellis encoded channel symbols. ATSC compliant receivers must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (receiving a signal including a number of streams of encoded information), in substantially the same way (receiving signals transmitted using multiple convolutional encoders or an emulation thereof), to achieve substantially the same result (generating respective streams of encoded data in response to respective portions of an input stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
each of said channel symbols being comprised of a plurality of signal points, and	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>Each trellis encoded channel symbol encoded by one of the twelve trellis</p>

	<p>encoders in an ATSC compliant transmitter comprises four Vestigial Sideband (VSB) values (signal points), that are provided to the VSB modulator. (See, e.g., ATSC Digital TV Standard (original), pp. 51-52; Revision B, pp. 56-57; Revision C, pp. 63-64; Revision D, pp. 67-69.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing an encoded signal from a transmitter that uses multiple convolutional encoders or an emulation thereof), in substantially the same way (generating, for respective input values processed by a convolutional encoder, multiple output values for controlling a digital modulator), to achieve substantially the same result (producing multiple values for controlling the output of a digital modulator), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
interleaving the signal points of said generated channel symbols to form said stream of trellis encoded signal points,	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p>



		<p>The signal points output by respective ones of the twelve trellis encoders in an ATSC compliant transmitter are interleaved by an output multiplexer that outputs, for a given segment, one signal point from each trellis encoder every twelve time periods, thus forming a stream of trellis encoded signal points. (See, e.g., ATSC Digital TV Standard (original), Table 2, p. 54; Revision B, Table D2, p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (intermixing values for a digital modulator), in substantially the same way (arranging the output values from a single encoder in a pre-determined manner), to achieve substantially the same result (a stream of intermixed values in which values from multiple encoders are intermixed together according to the prearranged pattern), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
	<p>said interleaving being carried out in such a way that the signal points of each channel symbol are non-adjacent in said stream of trellis encoded signal points</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p>

<p>The signal points (VSB values) from each trellis encoded channel symbol (trellis encoded Reed-Solomon symbol) in an ATSC compliant transmitter are non-adjacent in the stream of trellis encoded signal points. (See, e.g., ATSC Digital TV Standard (original), Table 2, p. 54; Revision B, Table D2, p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (separating the output values of a given convolutional encoder that correspond to a single input symbol), in substantially the same way (intermixing output values from respective convolutional encoders), to achieve substantially the same result (creating a stream of output values for controlling the input of a digital modulator, so that values corresponding to a single input symbol are spaced apart in the stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>	
<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that</p>	<p>and such that the signal points of adjacent symbols in any one of said channel symbol streams are non-adjacent in said stream of</p>



trellis encoded signal points,	<p>correspond to this portion of the claim preamble.</p> <p>The signal points that make up adjacent trellis encoded channel symbols generated by any given trellis encoder in an ATSC compliant transmitter are themselves non-adjacent in the output stream. (See, e.g., ATSC Digital TV Standard (original), Table 2, p. 54; Revision B, Table D2, p. 59; Revision C, Table D2, p. 66; Revision D, Table D5.2, p. 70.) An ATSC compliant receiver must be capable of recovering information encoded in this fashion.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (separating the output values of a given convolutional encoder that correspond to adjacent input symbols to that encoder), in substantially the same way (intermixing output values from multiple respective convolutional encoders), to achieve substantially the same result (creating a stream of output values for controlling the input of a digital modulator, so that values corresponding to adjacent input symbols for a given convolutional encoder are spaced apart in the stream), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
said method comprising the steps of	ATSC Standard compliant receivers necessarily have deinterleaving circuitry or software that allocates received signal points to respective trellis decoder

<p>deinterleaving the interleaved signal points to recover said plurality of streams of trellis encoded channel symbols, and</p>	<p>circuits or software modules, or an equivalent circuit or software module, thus recovering the twelve streams of trellis encoded channel symbols generated by the transmitter. (See, e.g., Guide to Use of the ATSC DTV Standard (published as Document A/54A by ATSC on December 4, 2003) at Figure 9.11, p. 99.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (forming streams of demodulated signal values), in substantially the same way (allocating the received signal points to respective trellis decoders or software modules), to achieve substantially the same result (streams of demodulated signal values), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>using a distributed Viterbi decoder to recover said information from the deinterleaved signal points.</p>	<p>On information and belief, ATSC Standard compliant receivers necessarily have a distributed Viterbi decoder, or an equivalent circuit or software module, that recovers the originally encoded information encoded by the distributed trellis encoder described in the ATSC Standard. (See, e.g., Guide to Use of the ATSC DTV Standard (published as Document A/54A by ATSC on December 4, 2003) at Figure 9.11, p. 99.)</p> <p>In the event this limitation is construed or applied in such a way that it is</p>

found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (processing separate streams of demodulated digital values), in substantially the same way (using separate instances of a maximum-likelihood algorithm), to achieve substantially the same result (recovering the previously encoded information), as the recited limitation.

This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).

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**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION, COMCAST  
CABLE COMMUNICATIONS, LLC, and  
COMCAST OF PLANO, LP,

Defendant.

Case No. 2:05-CV-443 (TJW)

Jury Trial Demanded

**PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND PRELIMINARY  
INFRINGEMENT CONTENTIONS**

**Preliminary Infringement Analysis for U.S. Patent No. 4,937,819**

**A. Identification of Infringed Claims**

Pursuant to Local Patent Rule 3-1(a), Rembrandt hereby identifies claims 1, 2, 11, 12, and 14 of U.S. Patent No. 4,937,819 ("the '819 patent") as infringed by Defendants.

**B. Identification of Accused Instrumentalities**

Defendants infringe claims 1, 2, 11, 12 and 14 of the '819 patent by their sale, offer for sale, lease, use or operation of high speed cable networks that employ cable modems and cable modem termination systems that have the capability of being operated in compliance with the Data-Over-Cable Service Interface Specification (DOCSIS), versions ANSI/SCTE 22-1, dated 2002 ("DOCSIS 1.0"), SP-RFIV1.1-C01-050907, dated September 7, 2005 ("DOCSIS 1.1") and SP-RFIV2.0-I09-050812, dated August 12, 2005 ("DOCSIS 2.0"). On information and belief, most if not all cable modems and cable modem termination systems sold, leased, used or operated by Defendants conform to either the DOCSIS 1.0, 1.1 or 2.0 standards.

Accordingly, pursuant to Local Patent Rule 3-1(b), Rembrandt identifies as the Accused Instrumentalities (1) Comcast's high speed cable modem network and infrastructure, including any DOCSIS compliant cable modems and DOCSIS compliant cable modem termination systems configured for use in the Defendant's cable modem network ("Accused System"), (2) Comcast's use or operation of its high speed cable modem network and infrastructure ("Accused Method"), and (3) any computer software (including firmware, whether stored on an EPROM, EEPROM, field programmable gate array, or otherwise) configured for use in Comcast's high speed cable modem network and infrastructure, including in any DOCSIS compliant cable modems ("Accused CM Software") and DOCSIS compliant cable modem termination systems ("Accused CMTS Software"), (collectively, "Accused Software").

The DOCSIS compliant CMs and CMTSes configured for use in Comcast's high speed cable modem network include, without limitation, those products identified in Exhibit A, attached hereto. Rembrandt is not currently aware of the names or model numbers of all the CMs and CMTSes used by Defendants or by customers of Defendants, and reserves the right to modify or supplement the attached list as discovery progresses.

Rembrandt reserves the right to add additional Accused Instrumentalities as discovery progresses.

**C. Preliminary Infringement Claim Charts**

Pursuant to Local Patent Rule 3-1(c), plaintiff provides the following claim chart, attached hereto as Exhibit B, that explains how Defendants infringe the asserted claims in connection with their sale, offer for sale, lease, use or operation of a high speed cable modem network that includes DOCSIS compliant CMs, CMTSes. For clarity and convenience, the following claim charts primarily cite to the disclosure found in the DOCSIS 1.0 specification, but the same analysis applies to the DOCSIS 1.1 and 2.0 specifications, as DOCSIS 1.1 and 2.0 CMs and CMTSes are backwards compatible with DOCSIS 1.0 CMs and CMTSes, respectively. (See, e.g., DOCSIS 1.1 specification at Appendix G ("Besides supporting a rich set of QoS features for DOCSIS 1.1 CMs, the DOCSIS 1.1 CMTS must be backwards compatible with a DOCSIS 1.0 CM. Furthermore, it is necessary for a 1.1 CM to function like a 1.0 CM when interoperating with a 1.0 CMTS."); see also DOCSIS 2.0 specification at Annex G ("As well as supporting DOCSIS 2.0 capable CMs, the DOCSIS 2.0 CMTS must be backwards compatible with DOCSIS 1.0 and DOCSIS 1.1 CMs. Furthermore, it is necessary for a DOCSIS 2.0 CM to function like a 1.0 CM when interoperating with a 1.0 CMTS and to function like a 1.1 CM

when interoperating with a 1.1 CMTS.”.) Other citations are included for reference, but any citations should not be construed as limiting.

**D. Reliance on the Doctrine of Equivalents**

Pursuant to Local Patent Rule 3-1(d), Plaintiff presently contends that Defendants sale, offer for sale, lease, use or operation of a high speed cable modem network that includes DOCSIS 1.0, 1.1 and 2.0 compatible CMs, CMTSes literally infringes the identified claims. In the alternative, Plaintiff reserves the right to rely on the doctrine of equivalents should claim construction or discovery determinations or facts of which Plaintiff is not currently aware suggest such reliance. Plaintiff has included certain contentions regarding doctrine of equivalents, but reserves the right to modify or supplement any such contentions to the extent made relevant by the Court’s claim construction ruling.

In the event that discovery reveals that the Accused Instrumentalities utilized by Defendants implement the claimed invention in software, Plaintiff reserves the right, pursuant to Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h), to provide supplemental infringement contentions within 30 days of the production of source code for such software, should such supplemental contentions be necessary.

In the following claim charts, Plaintiff has subdivided each claim element into sub-elements to better explicate where on the Accused Instrumentalities each element may be found. The subdivisions in the following chart should not be taken as an indication of the boundaries of claim elements for the purposes of determining infringement under the doctrine of equivalents.

**E. Statement of Earliest Priority Date**

Pursuant to Patent Local Rule 3-1(e), Plaintiff states that the earliest priority date all claims of the ’819 Patent are entitled to is the September 26, 1988 filing date of the ’819 patent.

**F. Identification of Instrumentalities Embodying the Patent**

Pursuant to Patent Local Rule 3-1(f), Plaintiff states that it does not manufacture any products that embody the claims of the '819 Patent.

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on June 21, 2006, a true and correct copy of this document was served on the following attorneys of record at the address and in the manner indicated:

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A

## CableHome® - DOCSIS® - PacketCable™ Certified Products - 10/28/05

CH = CableHome D = DOCSIS PC = PacketCable

Beginning with Certification Wave 28, products may be awarded certification/qualification of multiple specifications through the CableLabs "combined certification program".

Note that combined certification will not apply retroactively to any product certified prior to Certification Wave 28, unless that product is submitted for re-certification.

Disclaimer: The model number, software version and hardware version information is provided by the vendor when submitting product for certification and CableLabs assumes no responsibility for accuracy or completeness of that information.

\* This product is certified only for the uses as defined in the executive summary of the certification application.

CW	Version	Type	Manufacturer	CI ID	Model #	SW Version	HW Version	OEM Vendor ID	Spec Combo - Certified As	Verified For Interoperability
39	D2.0	CM	WideView Technology	Wide381	WM-100	17.1.7.17	35.4.2		D1.1, D2.0	
39	C1.1	Embedded PS	SMC	Smo3391	SMC8014WG-CHM	3.17.11	1.65		D1.1, D2.0, CH1.1	
39	D2.0	CM	Askey	Aske381	CAM300	2.0.3.8.5	1.6		D1.1, D2.0	
38	D1.1	CM	Telgrade	Tel8381	1.0.8	1.0.2	1.0.0		D1.1	
38	D2.0	DSG eCM	Pace	Pace381	TDC775D	3.2.16001	V1.0		D1.1, D2.0	X
38	D2.0	CM	Arns	Arn381	TH502G	4.5.0	01		D1.1, D2.0	
38	PC1.0 in D2.0	EMTA	Motorola	Moto382	SBV5200	SBV5200-2.1.3710.1-	1		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Motorola	Moto383	SBV5121-2.17.5.23-	SBV5121-2.17.5.23-	1		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Pace	Pace382	DPV315	SCM01-NOSH	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci382	DPV2203	V2.0.2i1254	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Thomson	Thom381	DPV2223	V2.0.2i1154	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Thomson	Thom382	DHG535	ST70.01.00	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Thomson	Thom381	DHG535	ST62.08.00	5.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Ambl	Ambl381	U100021	4.7.1.1001	2.31		D1.1, D2.0, CH1.1	
38	C1.1	Embedded PS	Cisco-Linksys	Link383	WCG104	2.0.3.7.16	2.0		D1.1, D2.0, CH1.1	
38	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link382	CMF2008	2.0.3.7.16	1.0		D1.1, D2.0, PC1.0	
38	C1.1	Embedded PS	Motorola	Moto381	SBG940	SCM01-NOSH	1		D1.1, D2.0, CH1.1	
38	D2.0	CM	Alpha	Alph381	Alpha CM-H	2.01.01AH1.0	1.0		D1.1, D2.0	
38	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link381	CMF300B	17.0.5.23	98.0		D1.1, D2.0, PC1.0	
37	P1.1	MG	Nuera	4Nuor371	BTX-4K	1.1	A		PC1.0, PC1.1	
37	P1.1	MG	Siemens	3Siem371	Surpass HQ 8000	08.04.01.US.05	Sun Microsystems		PC1.0, PC1.1	
37	P1.1	MG	Nortel	3Nort371	CS 2000 MGC	SN08.PSM	Netra 1400T		PC1.0, PC1.1	
37	P1.1	CMS	Siemens	0Siem371	Surpass HQ 8000	08.04.01.US.05	Sun Microsystems		PC1.0, PC1.1	
37	P1.1	CMS	Nortel	0Nort371	CS 2000 CMS	SN08.PSC	Netra 1400T		PC1.0, PC1.1	
37	D2.0	CM	Turbocomm	Turb371	EC420	17.0.1.11	28.2		D1.1, D2.0	
37	D2.0	CM	Motorola	Moto371	SB5121	SB5121-2.17.0.12-	1.0		D1.1, D2.0	
37	D2.0	CM	Asustek	Asus371	ACM6049EB	3.7.7	3.00		D1.1, D2.0	
35	D1.1	CM	Toshiba	Toek352	PCX2000	2.1R.007	3.2.1		D1.1	
35	D2.0	CM	Toshiba	Toek351	PCX2000	8.43.2	25.0.0		D1.1, D2.0	
35	D2.0	CM	Aris	Art351	TTM402P Phase 2	4.4.1	32		D1.1, D2.0	
34	PC1.0 in D2.0	EMTA	Thomson	Thom341	DHG525	ST62.06.00	5.0		D1.1, D2.0, PC1.0	
34	PCMM in D2.0	CMTS-MM	Motorola	2Moto341	BSR 64000	4.1.0T08P10.12.KRAU	CHS-0009-01		D2.0, PCMM	
34	PCMM	Policy Server	Telcordia	5Telc341	Policy Manager 1.0	PS-R1.0-200502091200	SUNW.Ultra-80		PCMM	
34	P1.1	MG	Cisco	4Cis341	MGX8880	5.50	VXSM		PC1.0, PC1.1	
34	PC1.0 in D2.0	EMTA	Ambl	Ambl341	U100017	4.36.1018	2.22		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	Camiant	5Cam341	CAMS-2275	2.0.0	Intel SR 1300 Server		PCMM	
34	D2.0	CMTS	Bighand Networks	2Bigs341	Cuda 12000 (C12-	R8.0.0	Rev 4		D1.1, D2.0	
34	P1.0	MG	Nuera	4Nuor341	DM2x8-2.0)	1.1.0.4	A		PC1.0	
34	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link341	CMF2B	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link342	CS2P2WB	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34	PC1.0 in D2.0	EMTA	Neigear	Nigr341	CVG874G	3.5.8R01	1.00		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	Tazz Networks	5Tazz341	Tazz PCS	PCMM 1.2	SUN V800V26z		PCMM	
34	PC1.0 in D2.0	EMTA	Tereyon	Ter341	TJ945	16.00.10	31.0		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	CableMetrix	5Cabl341	ODSP	0.8.6	NA		PCMM	
34	PCMM	Policy Server	C-Cor	5Ccor341	NA	1.0	NA		PCMM	
34	P1.0	CMS	Sonus	0Sonus341	ASX Access Server	V06.01.00F004	SUNFIRE V120		PC1.0	
33	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci332	DPX213	V2.0.2i1251	1.0		D1.1, D2.0, PC1.0	
33	D2.0	CM	Cisco-Linksys	Link331	BEFCMU10 ver. 5	2.0.3.5.6	2.0		D1.1, D2.0	
33	C1.1	Embedded PS	Ambl	Ambl331	U100019	5.66.1000	4.10		D1.1, D2.0, CH1.1	
33	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link333	CG2P2WB	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci331	DPX2203	V2.0.2i1151	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link332	CMF2B	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Thomson	Thom331	DHG535	ST62.05.00	5.0		D1.1, D2.0, PC1.0	

32	D2.0	CMTS+DSG Agent	Motorola	2Mn321	BSR 64000	4.1.0T08P10.KRAU	CHS-0005-01	Cone291	D1.1, D2.0
32	D2.0	CM	Zoom	Zoom321	5241	5.35.33.5	100		D1.1, D2.0
32	D2.0	CMTS+DSG Agent	Arnis	2Am321	C4-CMTS-2100-1	CMTS_V04.02.06.10	2.0	Rev 4	D1.1, D2.0
32	D1.1	Bigband Networks	Terayon	1Bb321	Cuda 12050	RS-5.0	56.1		D1.1
32	D2.0	CM	Terayon	Tera321	TJ716x	15.0.0.20	1.0		D1.1, D2.0, CH1.1
32	D1.0	Embedded PS	Zydel	Zydel321	Prestige 974	V3.70.01	2.3.7		D1.1, D2.0, CH1.1
32	D1.0	DSG+CM	Scientific Atlanta	Zydel321	3300 DMLPR	V3.70.01	1.0		D1.1, D2.0, CH1.1
32	D1.1	Embedded PS	Zydel	Zydel321	Prestige 971	V4.1	4.1		D1.1, D2.0, CH1.1
32	D1.1	Embedded PS	Thomson	Thom321	DCW725	ST5A.06.01	2.0		D1.1, D2.0, CH1.1
32	D1.1	Embedded PS	Cisco-Linksys	Link321	C2P2WB	2.0.3.4.2	67		D1.1, D2.0
32	D2.0	CM	Arnis	Ant321	TM402G	4.4.1	1.0		D1.1
32	D1.1	CM	Tollgrade	Toll321	1.0.0	1.0.2	1.02		D1.1, D2.0, CH1.1
32	D1.1	Embedded PS	Netgear	Ngr321	C9814HWG	3.4.2	1.02		D1.1, PC1.0, PC1.1
31	PC1.1 in D1.1	CMTS+PC	Cisco	1Cic311	uBRT246 VXR/MC28U	12.215JBC2p1	MC28U-Rev 6.5		D1.1, D2.0, PC1.0
31	PC1.0 in D2.0	EMTA	Motorola	Moto311	SBV5220	SCM11-NOSH	1		D1.1
31	D1.1	CM	Electroline	Elec311	DHT-PS-NA-01	2.14	02		D1.1
31	D1.1	CM	AM Communications	Amco311	5862	1.69	4.0		D1.1
31	D1.1	CM	Tollgrade*	Toll311	1.0.0	1.0.2	1.00		D1.1, D2.0
30	D2.0	CMTS	Motorola	2Moto301	BSR 64000	4.1.0T04P08.KRAU	CHS-0009-01		D1.1, D2.0
30	D1.0	CM	Electroline	Elec302	DHT-PS-NA-01	2.10	01		D1.1
30	D1.1	Embedded PS	Thomson	Thom302	DCW725	ST5A.02.01	4.0		D1.1, D2.0, CH1.1
30	D2.0	CM	Terayon	Tera301	TJ716x	14.0.1.4101	35.0		D1.1, D2.0
30	D2.0	CM	Motorola	Moto301	SBV5220	SCM06-NOSH	1		D1.1, D2.0
30	PC1.0 in D2.0	EMTA	Cisco-Linksys, LLC	Link301	CM2P2B	2.0.3.2.5	2.0		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sab301	DPX2203	V2.0.2T1143	2.1		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Arbit	Arb301	U10C317	4.36.1007	2.22		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Cisco-Linksys, LLC	Link302	C2P2WB	2.0.3.2.5	2.0		D1.1, D2.0, PC1.0
29	D2.0	CM	Scientific Atlanta	Sab292	WebSTAR DPC2100	V2.0.2T1242	2.0		D1.1, D2.0
29	PC1.1 in D1.1	CMTS+PC	Motorola	1Moto291	BSR 64000	3.1.0T05P57.05.KRBU	CHS-0009-01		D1.1, PC1.0, PC1.1
29	D2.0	CM	Arbit	Arb291	U10C318	2.9.1.003	1.20		D1.1, D2.0
29	D2.0	CM	Cisco-Linksys	Link291	BEFCMU10 ver. 4	2.0.3.1.1	2.0		D1.1, D2.0
29	D2.0	CM	Comcast	Com291	ACM851	5.35.33.5	100		D1.1, D2.0
29	D2.0	CM	Comcast	Com292	XCM851	5.35.33.5	10		D1.1, D2.0
29	D2.0	CM	Motorola	Moto291	SB5120	SCM05-NOSH	4		D1.1, D2.0
29	D2.0	CM	Thomson	Thom291	DCM425	ST52.01.02	4.0		D1.1, D2.0
29	D2.0	CM	Scientific Atlanta	Sab291	WebSTAR DPC2100	V2.0.2T1142	1.2		D1.1, D2.0
29	C1.1	PS	Cisco-Linksys	Link293	COV2W	2.0.3.1.0	2.0		D1.1, D2.0, CH1.1
29	D1.1	CMTS	ADC	1Adco291	Cuda 12000	RS-5.0	Rev4		D1.1
29	D1.1	CMTS	Motorola	1Moto292	BSR 64000	3.1.0T05P57.05.KRBU	CHS-0009-01		D1.1
29	P1.0	MG	AudioCortea	4Aude291	Mediant 5000	2.0.30.1.6	Rev. B		PC1.0
29	P1.0	MG	General Bandwidth	4Gene291	G8	rel_1001_0_0_BOX	1.0		PC1.0
29	P1.0	MG	Motorola	Moto292	SBV5120	SCM16-NOSH	1		D1.1, D2.0, PC1.0
29	C1.1	Embedded PS	Cisco-Linksys	Link292	WC3200 ver. 2	2.0.3.1.1	2.0		D1.1, D2.0, CH1.1
29	D2.0	CMTS	Arnis	2Am291	C4-CMTS-2100-1	CMTS_V04.00.00.104	2.0		D1.1, D2.0
29	D2.0	Embedded PS	Arbit	Amb292	60740EU	5.1.1.1111	4.7		D1.1, CH1.0
28	D2.0	CM	Motorola	Moto286	SBG900	2.1.8.25CMB1	3		D1.1, D2.0
28	C1.0	Embedded PS	Motorola	Moto282	SBG940	SBG940-2.1.8.1-	1		D1.1, D2.0, CH1.0
28	D2.0	CM	Motorola	Moto281	SBG940	SBG940-2.1.8.1-	1		D1.1, D2.0
28	D2.0	CM	Motorola	Moto287	SB5101	SB5101-2.4.0.1-SCM00-NOSH	1		D1.1, D2.0
28	D2.0	CM	Motorola	Moto283	SBV5120	SCM02-NOSH	1		D1.1, D2.0
28	C1.1	Embedded PS	Cisco-Linksys	Link281	WC3200	2.0.2.10.0	1.2b		D1.1, D2.0, CH1.1
28	D2.0	CM	Shenzhen Coship	Cosh281	CCM2000A	12.0.2.13	35.0		D1.1, D2.0
28	D2.0	CM	Askey	Alke281	CME100	2.0.2.0.6	2.1		D1.1, D2.0
28	D2.0	CM	D-Link	Dln281	DCM-202	2.0.1	1A		D2.0
28	D2.0	CM	Daehant	Daeh281	LP3200	10.2.0	29.2		D1.1, D2.0
28	D2.0	CM	Arnis	2Art281	710622 (C3)	4.0.1.45	04		D1.1, D2.0
28	D2.0	CM	Castlenet	Cast281	DP1110XB2A	2.7.2.280	1.0		D1.1, D2.0
28	D2.0	CM	Arbit	Arb281	19018EU	2.93.1000	1.18		D1.1, D2.0
28	P1.0	MGC	Nortel Networks	3Nort281	CS 2000 MGC	SN06.PSM	1		PC1.0
28	D2.0	CM	Castlenet	Cast282	DP1110XB2	2.5.2.117	1		D1.1, D2.0
28	C1.1	Embedded PS	Netgear	Ngr281	C9814HWG	2.10.06.01	1.02		D1.1, D2.0, CH1.1
28	D2.0	CM	Comcast	Com281	ACM851	5.29.30.6.MO0B	100		D1.1, D2.0

26	P1.0	CMS	Siemens	0Siem281	Surpass NG 8000	06.02.01.US.09	San Microsystems	PC1.0
26	PC1.1 in D1.1	CMTS+PC	Cisco	1Cisco281	UBR7246 VXRMC28U	12.21.15BC2p	Nova 1400T	D1.1, PC1.0, PC1.1
26	PC1.0 in D2.0	EMTA	Aris	Ariz281	TM402P	TS.04.01.01.013004C	MC28U: Rev 6.5	D1.1, D2.0, PC1.0
26	D1.1	CM	Electroline	Ele281	DHT-PS-NA-01	2.00	01	D1.1
26	D1.1	CM	Toshiba	Tosh281	PCX1100UDAZ8	1.8.022	6.11	D1.1
26	D1.1	CM	Thomson	Thom282	DCM325	ST31.08.01	1.7	D1.0
26	D1.0	CM	Thomson	Thom281	DCM325	ST32.00.00	1.7	D1.1, D2.0
26	D2.0	CM	Comexant	Com282	XCM951	5.25.30.6.MIAM	010	D1.1, D2.0
26	D2.0	CM	Arbitel	Arbit272	BD740ELUW	5.11.11.11	4.7	CH1.0
27	C1.0	CM	Cisco-Linksys	Link271	BEFCMU10 ver.3	2.0.2.0.1	1.0	D2.0
27	D2.0	CM	Terafon	Tera272	TJ815g	4.21.5	41.0	D2.0
27	D1.1	CMTS	Cisco	1Cisco271	UBR7246 VXRMC28U	12.21.15CXc1	MC28U: Rev 6.2	D1.1
27	C1.0	Embedded PS	Motorola	Moto271	SGS9800	SCM02-NOSH	2	CH1.0
27	D1.1	CM	Best Data	Best271	CMX300v2	0.14457.2570	10	D1.1
27	P1.0	CMS	Telcordia	TElc271	Telcordia Call Agent	2.3.3	Sun Ultra 80	PC1.0
27	D2.0	CM	Scientific Atlanta	Sclat273	WebSTAR DPC2100	v2.0.1r1133	1.1	D2.0
27	PC1.0 in D3.0	EMTA	Scientific Atlanta	Sclat271	WebSTAR DPX2203	v2.0.1r1133	1.1	PC1.0
27	D3.0	CM	Toshiba	Tosh271	PCX2600DAZB23	3.0.14	19.0.1	D2.0
27	D3.0	CM	Scientific Atlanta	Sclat274	WebSTAR DPX2100	v2.0.1r1134	1.3	D2.0
27	C1.0	Embedded PS	Scientific Atlanta	Sclat272	WebSTAR DPR2320	v2.0.1r1133	1.1	CH1.0
27	C1.0	Embedded PS	Netgear	Net271	CS814WG	2.92R01	1.02	CH1.0
27	D2.0	CM	Thomson	Thom271	DCM315	ST33.04.00	3.1	D2.0
27	D2.0	CM	Motorola	Moto273	SB5100	SB5100-2.3.1.6-SCM01-	3	D2.0
27	D2.0	CM	Motorola	Moto272	SBG900	NOSH	2	D2.0
27	D2.0	CM	Calix, Inc.	Calix271	CRM3900	SCM04-NOSH	2	D2.0
27	D2.0	CM	Zytek	Zyxe271	Preslige 964	7.0.2	6.0.1	D2.0
27	P1.0	MGC	Cisco	CCic271	BTS10200	SW_REV3.61	HW_REV3.6	D2.0
27	P1.0	CMS	Cisco	CCic271	BTS10200	PSL4.1Q11	BTS10200	PC1.0
27	P1.0	CMS	Cedar Point	CCed271	SAFARI	PSL4.1Q11	BTS10200	PC1.0
27	P1.0	CMS	Motorola	Moto262	DCM625DCM625R	SBG900-2.1.3.4	1	D2.0
26	D2.0	CM	Thomson	Thom262	60578EU	SCM05-NOSH	1.1	D1.0
26	D1.1	CM	Arbitel	Arbit261	WebSTAR DPX2100	ST41.03.00	1.1	D1.1
26	D1.0	CM	Scientific Atlanta	Sclat261	BTX-8	2.57.1002	1.12	D1.0
26	D1.0	MG	Nuera	4Nu261	WebSTAR DPX2100	v1.0.1r1131-0424	1.11	D1.0
26	P1.0	CM	Cedar Point	CCed261	SAFARI	2.0	2.0	PC1.0
26	P1.0	CM	Thomson	Thom265	DCW615 (DCW615R)	2.07.3	1.1	PC1.0
26	D1.1	CM	Thomson	Thom265	WebSTAR DPR2320	ST49.04.00	1.4	D1.1
26	C1.0	Embedded PS	Scientific Atlanta	Sclat263	Cuda 12000 (C-12)	v2.0.1r1132	1.1	CH1.0
26	PC1.0 in D1.1	CMTS+PC	ADC	1Adac261	DM1X6SPME-SF	R5.0.0	CMTS: Rev 14	PC1.0
26	D2.0	CM	Motorola	Moto261	SB5100	SB5100-2.3.0.5-SCM01-	3	D2.0
26	D2.0	CM	Scientific Atlanta	Sclat265	WebSTAR DPC2100	NOSH	1.0	D2.0
26	D2.0	CM	Askey	Aske261	CME100	v2.0.1r1132	2.1	D2.0
26	P1.0	CMS	Nortel Networks	0Nort261	CS2000	2.02.0.1	SN05.PHC	PC1.0
26	D2.0	CM	JooHong	Jhoo261	SL2810	SN06.PSC	29.2	D2.0
26	D2.0	CM	Zytek	Zyxe261	Preslige 964	10.2.0	3.6	D2.0
26	D1.1	CM	Cisco	Clic261	Upd25	12.2	31	D1.1
26	D1.1	CM	Linksys	Link264	WC2000	1.1.3.0.1	1.2b	D1.1
26	D1.1	CMTS	Aris	1Ariz261	CMTS 2000	3.2.1.100.001	2	D1.1
26	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sclat264	WebSTAR DPX2203	v2.0.1r1132	1.1	PC1.0
26	D1.1	CM	Motorola	Moto264	SB3100	SB3100-1.4.8.13-	1	D1.1
26	D1.1	CM	Belkin	Belk261	F5D550C-W	SCM01-NOSH	10	D1.1
26	D1.1	CM	Castenet	Cast261	CXC-150	0.14457.2571	10	D1.1
26	D1.1	CM	SMC	Smc261	SMC3004CM	2.0.1	1A	D1.1
26	D1.0	CM	Thomson	Thom261	DCM315DCM315R	ST31.07.00	1.3	D1.0
26	D1.0	CM	Thomson	Thom264	DCM315DCM315R	ST31.08.00	1.6	D1.0
26	C1.0	Embedded PS	Netgear	Net261	NGR261	2.90R01	1.02	CH1.0
26	D2.0	CM	Thomson	Thom263	DCM316DCM316R	ST36.10	50.1	D2.0
26	D2.0	CM	Texas Instruments	Tera261	TNETC421A	10.2.4	51.2	D2.0
26	D2.0	CM	Terafon	Tera262	TJ715X	6.22	10.0	D2.0
26	D2.0	CM	Terafon	Tera262	TA-102	6.0.1v	9.3	D2.0
26	D1.1	CM	Toshiba	Toss263	PCX2200DAZB817	1.8.017	7.4	D1.1

26	D1.1	CM	Motorola Linksys	Motor263 Link261	SBG1000 BEFCMU10 ver.3	SRG1600-1.1.3.5-SCM00-NOSH 1.1.1.0.1 5.19.20.2.FORTMESH. 1	1.0	1	D1.1
26	D1.1	CM	Castlenet Linksys	Cast262 Link263	CXC250 WCG5700	2561 1.1.3.0.1 2.2.6.8 9.0	0.10	1.2b	D1.1
25	D1.1	CM	Syndeo	OSynd251	WYgen 426 T.J715	2.2.6.8 9.0	1.0b	Sun Blade 1000	PC1.0
25	D2.0	CM	Terayon	Teraz253	WCG200	2.0.1.0.2 2.8.R03 1.40	1.0b	1.40	CH1.0
25	C1.0	CM	Linksys	Thom254	DCW615DCW615R	1.0.0	17.0.0	17.0.0	CH1.0
25	D1.0	CM	Thomson	Tosh263	PCX4500DAZ8641	CM.04.02.011703C	01	01	D1.1
25	D1.0	CM	Toshiba	Ariz252	CM450A	R4.0	R4.0	R4.0	PC1.0
25	D1.1	CM	Ariz	OCasc251	BTS10200	R4.0	1.0b	1.0b	D2.0
25	P1.0	CM	Linksys	Link255	WCG200	1.1.5 3.0	3.0	3.0	D1.1
25	D2.0	CM	Linksys	Link257	WCG200	2.0.1.0.1 1.1.2.1.1.3.1	1.0b	1.0b	D1.1
25	D1.1	CM	Scientific Atlanta	Side252	WebSTAR DPX100	1.1.2.1.1.3.1	2.1	2.1	D1.1
25	D1.1	CM	SMC	Smcn253	SMCR013W5	2.0.0	1A	1A	D1.1
25	D1.1	CM	Terayon	Tera261	TA-102	2.2.15	8.15	8.15	D1.1
25	D1.1	CM	Terayon	Tera262	T.J715	5.26	9.0	9.0	D1.1
25	D1.1	CM	Thomson	Thom253	DCW615	2.81R01	1.40	1.40	D1.1
25	D1.1	CM	Ariz	Ariz251	60678EU	2.57.2007	1.12	1.12	D2.0
25	D2.0	CM	Ariz	Ariz253	CM450A	CM.04.02.011703C	01	01	D2.0
25	D2.0	CM	Castlenet	Cast253	CXC250	5.12.21	0.10	0.10	D2.0
25	D2.0	CM	Thomson	Thom252	DCM315	ST32.06.00	1.2	1.2	D2.0
25	D2.0	CM	Hilton	Hir252	BRG-3520T	2.0.1	1A	1A	D1.1
25	D1.1	CM	Terayon	Tera265	T.J715X	5.26	7.0	7.0	D1.1
25	D2.0	CM	Motorola	Motor253	SB5120	SB5120-2.9.2.9-SCM-03-NOSH	1	1	D2.0
25	D2.0	CM	Motorola	Motor256	SB5120	SB5120-2.9.3.9-SCM-03-NOSH	2	2	D2.0
25	D2.0	CM	Scientific Atlanta	Sca251	WebSTAR DPX2100	2.0.1d1.1.3.1	1.1	1.1	D2.0
25	PC1.0 in D1.1	CM	Ariz	Ariz251	C4-CMTS-2106-1	CMTS_VO3.01.00.20	1.3	1.3	PC1.0
25	D2.0	CM	Terayon	Tera254	T.J715	6.20	7.0	7.0	D2.0
25	D2.0	CM	Toshiba	Tosh252	PCX2600DAZ8823	3.0.13	19.0.0	19.0.0	D2.0
25	D1.1	CM	Netgear	Ngr251	CGR14Mv2	2.0.0	1A	1A	D1.1
25	D1.1	CM	Motorola	Motor252	SB5120	SB5120-2.9.2.9-SCM-03-NOSH	1	1	D1.1
25	D1.1	CM	Hilton	Hir251	BRG-3520T	2.0.1	1A	1A	D1.1
25	D1.1	CM	Correlant	Corr251	EC330A	9.2.9	17.0	17.0	D1.1
25	D2.0	CM	Com21	Com21	DP1110XB2	2.5.2.111	1	1	D2.0
25	D1.1	CM	D-Link	Dln251	DCM-201	1.1.0	4A	4A	D1.1
25	PC1.0 in D1.1	CM	Cisco	Clac253	uBR7246v4r	12.2(11)BC2p	rev B0, MC16S rev 1.0, NPE400: Rev A0, HW	rev B0, MC16S rev 1.0, NPE400: Rev A0, HW	PC1.0
25	PC1.0 in D1.1	CM	Ariz	Ariz251	TTM202P	TM03.02.020763C	05	05	PC1.0
25	D1.0	CM	Thomson	Thom251	DCM150DCM015R	ST31.04.00	1.2	1.2	D1.0
25	D1.1	CM	Motorola	Motor259	SB3100	SB3100-1.4.8.13-SCM00-NOSH	1	1	D1.1
25	D1.1	CM	Cisco	Clac252	uBR7114	12.2(11)BC3c	Rev 1.3	Rev 1.3	D1.1
25	D1.0	CM	Toshiba	Tosh251	PCX2600DAZ8823	10.13	19.0.0	19.0.0	D1.0
25	PC1.0 in D1.1	CM	Motorola	Motor255	SBV4200	SBV4200-07.2.04-SCM00-NOSH	1	1	PC1.0
25	PC1.0 in D1.1	CM	Cisco	Clac251	uBR10012	12.2(11)BC2p	Rev 4.0, MC28 Rev A0	Rev 4.0, MC28 Rev A0	PC1.0
25	PC1.0 in D1.1	CM	Motorola	Motor251	BSR64000	1.3.0704P21.KRAU	PCA-0100	PCA-0100	PC1.0
25	PC1.0 in D2.0	CM	Terayon	2Tera251	BW3500	2.0.0.1.21	2.0	2.0	PC1.0
25	D1.1	CM	Kingo	Kip251	CMO1001	5.26	7.0	7.0	D1.1
25	C1.0	CM	Ariz	Ariz253	60740EUW	5.11.1001	4.8	4.8	CH1.0
25	D1.0	CM	Ariz	Duan251	CDM-130DAZ8821	1.0.6	9.1.1	9.1.1	D1.0
24	D1.1	CM	Ariz	Ariz243	TC60DA1430	1.1.0	02	02	D1.1
24	D1.1	CM	Motorola	Motor242	SB5100	SB5100-1.1.1-SCM01-NOSH	1	1	D1.1
24	D1.1	CM	Kingo	Kip241	CMO1001	5.25	7.0	7.0	D1.1
24	D1.1	CM	Com21	Com241	DP1110XB2	2.5.2.110	1	1	D1.1
24	D1.1	CM	Broadvent	Broad241	8601	1.1.5.11	5.2	5.2	D1.1
24	D1.1	CM	Askey	Asko241	CME100	1.1.1.11	1.0	1.0	D1.1
24	D1.1	CM	Ariz	Ariz241	TM620B102	3.5.1	04	04	D1.1
24	D1.1	CM	Ariz	Ariz241	60194E	2.23.1096	1.8	1.8	D1.1
24	D1.0	CM	Toshiba	Tosh243	PCX2200DAZ8818	1.7.022	7.6	7.6	D1.0
24	D1.0	CM	Thomson	Thom242	DCM305DCM305R	ST23.1B.41	028	028	D1.0

24	D1.1	CM	Pioneer	Pion241	BT-4650W	1.1.1 r1	1.0			D1.1
24	D1.1	CMTS	Scientific Atlanta	1Soc231	Pharma G1	2.1.1.1B8	M2-G1			D1.1
24	D1.1	CM	Toshiba	Tosh245	PCX201DAZ7781	1.0.0	17.0.0		1unpr231	D1.1
24	D1.0	CM	Thomson	Thom241	TCM315DCM315R	ST31.01.00	1.1			D2.0
24	D2.0	CM	Terayon	Tera243	TJ715	6.19	3.0	Rev 3.0, MC5x20S rev.		D1.1
24	D1.1	CMTS	Cisco	1Cis241	UBR10012	12.2(1)BC2c1	5.0			D2.0
24	D2.0	CMTS	Terayon	2Tera241	BW5500	2.0.0.021	2.0			D1.1
24	D1.1	CMTS	Arifs	1Am242	ARC000048	4.2.8	01	rev B0, MC16S rev 1.0, NPE400, RevA0, HW		D1.1
24	D1.1	CMTS	Cisco	1Cis242	uBR7200 VXR	12.2(1)BC1c	1.03			D1.1
24	D2.0	CM	Texas Instruments	Texa242	TNETC406	27.8.2	13.1			D2.0
24	D2.0	CM	Scientific Atlanta	Soc241	WebSTAR DPX2100	20.1 r4	1.1			D2.0
24	D1.1	CM	Thomson	Thom244	DCM318DCM318R	5.25	8.0			D1.1
24	D2.0	CM	Xrosstech	Xros241	XCM-3500	7.0.2	6.0.1			D2.0
24	D1.1	CM	Scientific Atlanta	Soc242	WebSTAR DPX203	1.0.4 r4	5.0			D1.1
24	D1.1	CM	Arifs	Am242	TC00DA103	4.2.0	01			D1.1
24	D1.1	CM	Toshiba	Tosh241	PCX3000DAZ8831	6.2.3	13.0.0			D1.1
24	D1.1	CM	Texas Instruments	Texa241	CX300	8.2.2	200.2			D1.1
24	D1.1	CM	Terayon	Tera242	TJ715	5.25	7.0			D1.1
24	D1.1	CM	Terayon	2Tera241	TA-102	221	8.15			D1.1
24	D1.1	CM	Scientific Atlanta	Soc243	WebSTAR DPX362	1.1.1 r3	1.0			D1.1
24	D2.0	CM	Motorola	Molo243	SBS100	SBS100-1.1.1.1-SOM01-	1			D2.0
24	C1.0	Embedded P/S	Netgear	Ngr241	CG314WH	NOSH	1.30			CH1.0
24	PC1.0 in D1.1	EMTA	Arifs	Am241	TM2DB102	3.5.1	04			PC1.0
24	PC1.0 in D1.1	EMTA	Toshiba	Tosh262	PCX3000DAZ8631	7.2.3	13.0.0			PC1.0
24	PC1.0 in D1.1	CMTS+PC	Cisco	1Cis241	UBR7246 VXR	12.2 (1)BC1c	NPE400	Rev B0, MC16S rev 1.0,		PC1.0
24	PC1.0 in D2.0	Embedded PS	Terayon	2Tera241	BW5500	2.0.0.0.16	2.0			PC1.0
24	D1.1	CM	Linksys	Link241	BEFCMUJ4	2.64	1.30			CH1.0
24	D1.1	CM	Arbit	Am242	60678EU	2.57.1001	1.12			D1.1
23	D1.0	CM	Thomson	Thom231	DCM303DCM305R	ST24.13.40	028			D1.1
23	D1.1	CM	Toshiba	Tosh233	PCX2200DAZ8817	1.7.021	7.4			D1.1
23	D1.1	CM	Askey	Aske231	CME075	1.1.4 r1	5.4			D1.1
23	D1.1	CM	Belkin	Belk231	F5D5530JW	0.13645.2310	10			D1.1
23	D1.1	CM	CastleNet	Cast231	CXC160	0.13645.2310	10			D1.1
23	D1.1	CM	Com21	Crmo231	DP1110XB	2.3.2.109	3			D1.1
23	D1.1	CM	Hiron	Hir231	BRG-3520	1.1.0	4A			D1.1
23	D1.1	CM	Toshiba	Tosh231	PCX2500DAZ8821	1.0.11	9.2.3			D1.1
23	D1.1	CM	Linksys	Link233	BEFCMUJ0 Ver 2	1.1.4	4.0			D1.1
23	D1.1	CM	Toshiba	Tosh232	PCX5000DAZ8850	1.7.021SV	7.31			D1.1
23	D1.1	CMTS	Motorola	Molo231	BSR 64000	1.3.0T03P08AKREU	PCA-0100			D1.1
23	D1.1	CMTS	Terayon	1Tera231	BW6500	1.3.21.2	2.0			D1.1
23	D1.1	CM	Intel	Inte231	5200	14.5.4	9			D1.1
23	D1.1	CMTS	Juniper	1Jun231	Juniper G1	2.1.1.165	M2.0-01			D1.1
23	D1.1	CM	Linksys	Link231	BEFCMUJ4	2.63	1.30			D1.1
23	D1.0	CM	Motorola	Molo231	SBG1000	SBG1000-Q.1.1.1-	1			D1.0
23	D1.1	CM	Arifs	Am231	CM00DA103	SCM03-NOSH	01			D1.1
23	D1.0	CM	Thomson	Thom232	DCW232	3.3.0	1.30			D1.0
23	D1.0	CM	Netgear	Ngr231	CM212	2.63	3A			D1.0
23	D1.0	CM	Motorola	Molo232	SB4300	1.01	1		Hir201	D1.0
23	D1.0	CM	Netgear	Ngr232	CG914W	2.7.1b	1.10			D1.0
23	D1.0	CM	Scientific Atlanta	Soc231	Webstar DPX100	10.5 r1.1.3	2.1			D1.0
23	D1.0	CM	Scientific Atlanta	Soc232	Webstar DPX2100	2.0.1r	1.0			D1.0
23	D1.0	CM	SMC	Smcn231	SMC8012WS	2.63	1.00			D1.0
23	D1.0	CM	Efficient Networks, Inc.	ENR231	SpeedStream 6101	2.22.2	1.8			D1.0
22	D1.1	CM	Fujitsu	Frit221	FSC102	1.1.2 r1	5.1		ASKE211	D1.1
22	D1.1	CM	Motorola	Molo224	SB4200	1.4.8.5	1			D1.1
22	D1.1	CMTS	Cisco	1Cis221	UBR7200VXR/MC28C	12.2(7)BC1c	HW 2.03			D1.1
22	D1.1	CM	Texas Instruments	Texa221	TNETCA05T	6.3.0	9.1			D1.1
22	D1.1	CM	Toshiba	Tosh222	PCX2500DAZ8821	2.0.7	9.2.2			D1.1
22	D1.1	CM	Motorola	Molo223	SB4100	1.4.8.5	0			D1.1
22	D1.1	CMTS	ADC	1Adco221	Cuda 12000 (C12-DM1x6SPM-SF)	R3.1.23	CMTS: Rev A5			D1.1



22	D1.1	CMTS	Arts	1Am222	ARC00048	4.2.6	C1	D1.1
22	D1.1	CMTS	Juniper	1Jnp221	Juniper G10	2.1.0.18	2.0	D1.1
22	D1.1	CMTS	Motorola	1Molo221	BSR 64000	1.2.47.KRC	PCA-0057-02	D1.1
22	D1.1	CMTS	Motorola	1Molo222	BSR 1000	01.01.15.PRR	PCA-0027-030	D1.1
22	D1.1	CM	Com21	Cmo222	UP 1110XB	2.3.2.106	03	D1.1
22	D1.1	CMTS	ADC	1Ado222	Cuda 12000 (C-12-DM1xSPM-SF)	R3.1.23	CMTS, Rev. 23	D1.1
22	D1.1	CM	Motorola	Molo222	SB4220	SB4220-1.6.3.0-SCM-	1	D1.1
22	D1.1	CM	Toshiba	Tosh224	PCX2200	01-NOSH	1	D1.1
22	D1.1	CMTS	Scientific Atlanta	1Sci221	Prisma G10	1.7.017	7.3	D1.1
22	D1.1	CM	Com21	Cmo221	DP 1110XB	2.3.1.108	2.0	D1.1
22	D1.1	CM	Correlant	Cor221	EC270	1.8.10	7.41	D1.1
22	D1.1	CM	Josteng	Jos222	SL2800	Ver6.1.0	Ver2.1	D1.1
22	D1.0	CM	AsusTek	Asus222	ACM04658	1.9	1.4	D1.0
22	D1.0	CM	Linksys	Link222	BEFCMUJH1	1.0.0	0A	D1.0
22	D1.0	CM	Linksys	Link223	BEFCMUJH4	2.62	1.10	D1.0
22	D1.0	CM	Motorola	Molo221	SB4220	SB4220-0.8.3.0-SCM-	1	D1.0
22	D1.0	CM	Pioneer	Pion221	BT-M800W	01-NOSH	1	D1.0
22	D1.0	CM	Scientific Atlanta	Sci221	WebStar DPX100	1.0.5 r1.1	3.0	D1.0
22	D1.1	CM	3Com	3Com221	3CR2823	02.06	2.00	D1.1
22	D1.0	CM	Scientific Atlanta	Sci223	WebStar DPX100	1.0.5 r1.1	2.2	D1.0
22	D1.0	CM	Thomson	Thom221	DCM305305R	ST22.05.01	028	D1.0
22	D1.0	CM	Thomson	Thom222	DCM305305R	ST23.10.06	028	D1.0
22	D1.0	CM	Teniba	Ten221	PCX2500DAZ8821	1.0.6	9.1.1	D1.0
22	D1.0	CM	Scientific Atlanta	Sci222	WebStar DPX100	1.0.5 r1.1	2.1	D1.0
22	D1.1	CM	Broadcom	Broc221	8601	1.1.2 r1	5.1	D1.1
22	D1.1	CMTS	Arns	1Am221	C4-CMTS-2100-1	V02.09.02.10	1.0	D1.1
21	D1.1	CM	Corneat	Cor221	CX9421CM	4.12754	24943.15.0	D1.1
21	D1.1	CM	Askey	Aske211	CME075	1.1.2 r1	5.1	D1.1
21	D1.1	CM	Arns	Am211	A2TM02NA	2.1.0	04	D1.1
21	D1.1	CM	SMC	Adm211	CMS8011CM-B	2.3.1	3.0	D1.1
21	D1.0	CM	Thomson	Thom212	RCA DCM306	ST 22.04.06	028	D1.0
21	D1.0	CM	Motorola	Molo214	SB4200	0.4.4.0p	Rev. 1	D1.0
21	D1.0	CM	Motorola	Molo213	SB4100	0.4.4.0p	Rev. 0	D1.0
21	D1.0	CM	Linksys	Link211	BEFMCU10 ver.2	1.0.6	4.0	D1.0
21	D1.0	CM	AsusTek	Asus211	ACM6045EB	1.80	1.00	D1.0
21	D1.0	CM	Aastra	Aas211	HM300C	71-0001-10	ROA 219 767/r1A	D1.0
21	D1.1	CM	Quanta Network	Qua211	QCM200	2.4.1	3.2	D1.1
21	D1.0	CM	DX Antenna	Dxp211	COM-1200DAZ8820	1.1R.005	3.2.1	D1.0
21	D1.1	CMTS	Arns	1Am212	C4-CMTS2100	V01.01.00.12	1.0	D1.1
21	D1.0	CM	Linksys	Link212	BEFCMU10	1.0.4 Ref.2	3.0	D1.0
21	D1.1	CM	Scientific Atlanta	Sci211	WebSTAR DPX100	1.1.2 r1	RevA	D1.1
21	D1.1	CM	Tellabs	Tel211	CVM315A	2.5.0	1.3	D1.1
21	D1.1	CM	Terayon	Tera211	ECM815	4.34	3.0	D1.1
21	D1.1	CM	Terayon	Tera212	ECM715	5.08	026	D1.1
21	D1.1	CM	Thomson	Thom211	DCM245DCM245R	ST 10.00.00	04	D1.1
21	D1.0	CM	Coresma	Csm211	CM6011	0.5096.360	04	D1.0
21	D1.0	CM	Best Data	Best211	CMX300	0.5096.360	04	D1.0
21	D1.1	CM	Xrosstech	Xros211	XCM-2300	5.0.2	5.1.2	D1.1
21	D1.1	CMTS	RiverStone	1Rst211	RS 8600	9.2.1.1	Backplane RevA	D1.1
21	D1.0	CMTS	Terayon	OTera212	B2800	6.1.2.C.1	300-005-03-0B	D1.0
21	D1.0	CMTS	ADC	1Ado211	Cuda 12000	R3.1.91	1	D1.1
21	D1.1	CMTS	Cisco	1Cisc211	UBR10012	12.2(4) BCC	Rev 4.0 MC28 RevA0	D1.1
21	D1.1	CM	Scientific Atlanta	Sci212	WebSTAR DPX213	1.1.2 r1	1.0	D1.1
21	D1.0	CMTS	Scientific Atlanta	OScis201	Prisma G10	2.0.0	2.0.0	D1.0
21	D1.1	CM	Samsung	Same211	SCM-1400	2.1.0	14.00	D1.1
20	D1.0	CM	Motorola	Molo201	SB4100	0.4.3.3p	Rev. 0	D1.0
20	D1.1	CM	Scientific Atlanta	Sci202	WebSTAR DPX100	1.1.1 r1	2.0	D1.1
20	D1.1	CM	Ericson	Erc201	HM206C	CXC 112 2236/r1B	ROA 117 8463/r1A	D1.1
20	D1.1	CM	Arns	Ar201	A2TM01NA	1.1.0	02	D1.1
20	D1.0	CM	Toshiba	Tosh204	PCX2200/DAZ8817	1.7.014	7.1	D1.0
20	D1.0	CM	Thomson	Thom201	RCA DCM245	ST13.05.00	26	D1.0
20	D1.0	CM	Scientific Atlanta	Sci201	WebSTAR DPX100	1.0.5 r1	1.0	D1.0
20	D1.1	CM	Tellabs	Tel201	CVM410A	V3.20	V1A	D1.1
20	D1.0	CM	Motorola	Molo202	SB4200	0.4.3.3p	Rev. 1	D1.0
20	D1.1	CM	Anabit	Anbi201	60194E	2.25.986	1.8	D1.1

20	D1.0	CM	Hilton	Hlt201	BRG-3520	1.0.1	3A	D1.0
20	D1.0	CM	D-Link	Dln201	DCM-200	4.4382.1	3.2	D1.0
20	D1.0	CM	Cisco	Cisc201	UBR925	Ver 12.2	3j	D1.0
20	D1.0	CM	Ambit	Amb202	60237ELW	5.1.309	4.2	D1.0
20	D1.0	CM	3Com	3Com201	3CR29223	01.22	2.00	D1.0
20	D1.1	CMTS	Cisco	1Clac201	UBR7200 VXE/MC16S	12.1(7)CX2	rev B0 MC16S rev 1.0	D1.1
20	D1.0	CM	Panasonic	Pam201	TZ-CM200	1.7.14	2.1	D1.0
20	D1.0	CM	Toshiba	Tosh202	PCX2500 / DAZ8821	2.0.3	9.1.0	D1.1
20	D1.1	CM	Toshiba	Tosh203	PCX3000 / DAZ8831	2.2.3	13.0.0	D1.1
20	D1.0	CM	Cisco	OCic201	UBR10012	12.2(2)XF1	rev 3.0 MC28 Rev A0	D1.0
20	D1.0	CM	Toshiba	Tosh201	PCX2500 / DAZ8821	1.0.2	9.1.0	D1.0
20	D1.1	CM	Texas Instruments	Texa201	TNETC405T	4.0.9	9.0	D1.1
20	D1.0	CMTS	Pacific Broadband	6Pboc201	Kodak G10	2.0.0.16	2.0.0 (M2.0A1.2D2.0)	D1.0
19	D1.0	CM	Thomson	Thom191	DCM245 / DCM245R	ST12.07.01	26	D1.0
19	D1.0	CM	Samsung	Same191	SGM-120U	1.1.1	12.20	D1.0
19	D1.0	CM	Scientific Atlanta	Scie191	WebSTAR DPX110	1.0.4 Release 2	4.0	D1.0
19	D1.0	CM	Scientific Atlanta	Scie192	WebSTAR DPX110	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Askey	Aske192	CMF063	1.0.4 Release 2	4.0	D1.0
19	D1.0	CM	Terayon	Tera192	ECM615	3.52	1.2	D1.0
19	D1.0	CM	Coriant	Corr191	ECJ80T	1.7.11	7.11	D1.0
19	D1.0	CM	Askey	Aske191	CMH033	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Accton	Acta191	SMC8002CM	4.5096	9414.18.0	D1.0
19	D1.0	CM	Huapug Computer	Huap191	BRG-3510	1.0.9M1.2	A0	D1.0
19	D1.0	CM	LG Innolek	Lgin192	LCM5000	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Terayon	Tera191	ECM610	3.47	1.2	D1.0
19	D1.0	CM	AsusTek	Asus191	ACM6050EB	1.60	1.30	D1.0
19	D1.0	CM	CastelNet	Cast191	CXC110	0.5095.350	04	D1.0
19	D1.0	CM	Ericsson	Eric191	HM200c	CXC 112 2066/1 R6B	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Ericsson	Eric192	HM204c	CXC 112 2066/1 R6B	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Ericsson	Eric193	HM200c	R3G	R2B	D1.0
19	D1.0	CM	High Speed Surfing	Hgh191	SM200	0.5096.350	02	D1.0
19	D1.0	CM	LG Innolek	Lgin191	LCM100	4.5096	03	D1.0
19	D1.0	CM	Motorola	Mofo191	SB4030	4.2.12p	Rev. 1	D1.0
19	D1.0	CM	SMC	Smov191	SMC 8002 CM	2.8.3	1.6	D1.0
19	D1.0	CM	Motorola	Mofo192	SB4100	4.0.12P	Rev. 0	D1.0
19	D1.0	CM	Tri-Gem Computer	Trig191	Dream Port-1200	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Motorola	Mofo193	SB4101	4.0.12P	Rev. 4	D1.0
19	D1.0	CM	Panasonic	Pana191	TZ-CM200	1.7.11	2.1	D1.0
19	D1.1	CMTS	Cadent	1Cada191	C4-CM205-2100	V00.80.17	1.0	D1.0
19	D1.0	CM	Ambit	Amb191	60194E	2.22.2	1.8	D1.0
19	D1.1	CMTS	Arria	1Ard191	Comerstone CMTS	4.2.0	01	D1.1
19	D1.0	CM	Toshiba	Tosh192	PCX1800DAZ8816	1.7.011	7.1	D1.0
19	D1.0	CM	Motorola	Mofo194	PCX1200DAZ8815	1.7.011	7.0	D1.0
19	D1.0	CM	Turbocomm	Turb191	EC200T	Release 11x	48447-001 Rev A	D1.0
19	D1.1	CM	Toshiba	Tosh193	PCX2500DAZ8821	1.7.11	7.0	D1.0
19	D1.1	CM	Texas Instruments	Texa191	TNETC405	2.0.1	2.0.0	D1.1
19	D1.0	CM	Zoom	Zoom191	Zoom Cable Modem	4.100	140	D1.0
19	D1.0	CM	Siemer181	Sieme181	SCM-120U	1.0.0	20	D1.0
19	D1.0	CM	Eric182	Eric182	HM204c	CXC112 2066/1 R5A	ROA117 8439/1 R2A	D1.0
19	D1.0	CM	Linksys	Link181	BEUCM11	0.4381.108	04	D1.0
19	D1.0	CM	D-Link	Dln181	DCM-200	4.4382	3.2	D1.0
19	D1.0	CM	Net & Sys	Nets181	MNG2000	2.1.0	4.0	D1.0
19	D1.0	CM	Ericsson	Eric183	HM200c	R3D	R2B	D1.0
19	D1.0	CM	Zoom	Zoom181	5001	1.86	0295-014 (MIB-295014)	D1.0
19	D1.0	CM	US Robotics	Uro181	USR6000	2.13.2	1.6	D1.0
19	D1.0	CM	Thomson	Thom181	DCM245Z45R	ST12.07	26	D1.0
19	D1.0	CM	Toshiba	Tosh181	PCX 2000/DAZ8820	1.1R.006	3.3.2	D1.0
19	D1.0	CM	3Com	3Com183	3CR29250	2.16.1	1.6	D1.0
19	D1.0	CM	Toshiba	Tosh182	PCX 2000/DAZ8820	1.1R.005	3.2.1	D1.0
19	D1.0	CM	Ambit	Amfo181	60194E	2.8.3	1.6	D1.0
19	D1.0	CM	Hilton	Hlt181	BRG-3510	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Castelnet	Cast181	CXC110-Dual Link	0.4590.230	04	D1.0
19	D1.0	CM	3Com	3Com181	3CR28250	2.10.5	1.6	D1.0
19	D1.0	CMTS	Pacific Broadband	6Pboc181	KODIAK F10	1.1.0.17	M1.1/A1.7 / D1.1	D1.0
19	D1.0	CM	High Speed Surfing	Hgh181	SM100	0.4381.108	04	D1.0

16	D1.0	CM	Infinia	Infinia	ICM1150T	VCMem v1.8	ICM1150T Rev D	D1.0
18	D1.0	CM	Hiron	Hiron	BWG-3511	1.0.9W1.3	AO	D1.0
18	D1.0	CM	Eric181	Eric181	HM200c	CXC112 20981/1 R5A	ROA117 84351/1 R2A	D1.0
17	D1.0	CM	Samsung	Samsung	SCM-132U	V2.1.0	MediaLynx CM-2000	D1.0
17	D1.0	CM	Global Telemann	Global Telemann	MediaLynx CM-2000	K	Rev 0.5	D1.0
17	D1.0	CM	Samsung	Samsung	SCM-120R	4.4381	12.00	D1.0
17	D1.0	CM	Scientific Atlanta	Scientific Atlanta	Webstar DPX-110	1.0.3R4	3.0	Askel171
17	D1.0	CM	High Speed Surfing	High Speed Surfing	SM110	0.4381.108	0.4	D1.0
17	D1.0	CM	Terayon	Terayon	ECM210	1.7.8	6.62	Correlant
17	D1.0	CM	Texas Instruments	Texas Instruments	TNETC400G	.217	3.2	D1.0
17	D1.0	CM	Askey	Askey	CME063	1.0.3R4	3.0	D1.0
17	D1.0	CM	Nortel Networks	Nortel Networks	CM115U	1.0.3R4	3.0	Askel171
17	D1.0	CM	Motorola	Motorola	SB4100 Rev 3	4.0.9p	Rev 3	D1.0
17	D1.0	CM	Motorola	Motorola	SB4100 Rev 1	4.0.9p	Rev 1	D1.0
17	D1.0	CM	Motorola	Motorola	SB4100 Rev 0	4.0.9p	Rev 0	D1.0
17	D1.0	CM	MaltsuShite	MaltsuShite	TZ-CM100	1.1	1.1	D1.0
17	D1.0	CM	Cisco	Cisco	CVA-122	cva120-k1w4y5-mz.TLN	3.1	D1.0
17	D1.0	CM	Dakos	Dakos	CableXpert CM21100	4.0.43.81	1.0	D1.0
17	D1.0	CM	Castlenet	Castlenet	CXC110-CT1	0.4381.108	0.4	D1.0
17	D1.0	CM	ElaaAG	ElaaAG	MicroLink Cable	1.0.8	A3	D1.0
17	D1.0	CM	Motorola	Motorola	SB3100	3.2.12p	Rev 1	D1.0
17	D1.0	CM	Ericsson	Ericsson	HM200c R1A (ZAT 510)	R3D	R1A	D1.0
17	D1.0	CM	Ericsson	Ericsson	HM204c R1A (ZAT 510)	R4A	R1A	D1.0
17	D1.0	CM	Castlenet	Castlenet	CXC110-CableR	0.4381.108	0.4	D1.0
17	D1.0	CM	Powercom	Powercom	PCR-2600U	4.4382	V3.2	D1.0
17	D1.0	CM	Arria	Arria	Comerstone CMTS-1500	4.0.0	00	D1.0
17	D1.0	CM	RiverStone	RiverStone	RS-8000	6.1.2.C.1	Backplane, 300-001-05-0A CMTS module 02	D1.0
17	D1.0	CM	Tellabs	Tellabs	Cablesnap 2700	6.1.2.C.1	Backplane: 300-005-06-0A CMTS module -2	D1.0
17	D1.0	CM	Terayon	Terayon	BE 2000BE-CMTS-41	6.1.2.C.1	Backplane: 300-001-05-0A CMTS module 02	D1.0
17	D1.0	CM	Cisco	Cisco	UBR 7100	4.4.EC	Line card rev 3	D1.0
17	D1.0	CM	3Com	3Com	3CR29241	01.03	upon view 7	D1.0
17	D1.0	CM	3Com	3Com	3CR29233	01.15	2.0	D1.0
17	D1.0	CM	Accel	Accel	SMC 8001	2.1.0	2/1	D1.0
17	D1.0	CM	Zoom	Zoom	5001	2.0.42.70	029301	D1.0
17	D1.0	CM	RiverDelta	RiverDelta	BSR-4000	00.01.00.8A	CHS-0001-02	D1.0
17	D1.0	CM	Toshiba	Toshiba	DAZ8813	1.7.007	6.62	D1.0
17	D1.0	CM	Nortel Networks	Nortel Networks	CM220	v2.4 patch 1	V1.4	D1.0
17	D1.0	CM	Cisco	Cisco	UBR7200/MC28C	12.1(a)EC	A0	D1.0
17	D1.0	CM	ElaaAG	ElaaAG	204	1.30	G	D1.0
17	D1.0	CM	D-Link	D-Link	DCM100	4.4270	3.2	D1.0
17	D1.0	CM	Amibit	Amibit	60216P	v2.2 patch 9	V3.1	D1.0
17	D1.0	CM	Amibit	Amibit	60194E	2.2.7	1.4	D1.0
17	D1.0	CM	Arria	Arria	CM200R	S11.08	25	D1.0
17	D1.0	CM	Terayon	Terayon	ECM110	1.7.8	6.12	D1.0
17	D1.0	CM	Future Networks	Future Networks	FN110C	V2.15	V1.C	D1.0
17	D1.0	CM	Nat & Sys	Nat & Sys	MNG-1000	2.204	1.03	D1.0
17	D1.0	CM	3Com	3Com	3CR29233	V1.10	V2.00	D1.0
17	D1.0	CM	Askey	Askey	RT080	1.10.0	V8.0	D1.0
17	D1.0	CM	Cisco	Cisco	UBR905	ubr925-k1k2c3s4y5-mz	A0	D1.0
17	D1.0	CM	Cofe	Cofe	C1001	1.0.3657	01	D1.0
17	D1.0	CM	RiverStone	RiverStone	RS-8000	6.1.0.1	Rev 02	D1.0
17	D1.0	CM	Toshiba	Toshiba	PCX1100UDAZ8813	1.7.006	6.62	D1.0
17	D1.0	CM	Lucent (Delta Kabel)	Lucent (Delta Kabel)	Demos 38-033	V2.91.0	V8.0	D1.0
17	D1.0	CM	Toshiba	Toshiba	PCX1100UDAZ8811	1.7.006	6.12	D1.0
17	D1.0	CM	RiverDelta	RiverDelta	BSR 1000	2.1.9	BSR 1000	D1.0

15	D1.0	CMTS	Terayon	0Tera151	Teralek 2006 TLL-	Chassis: revB; CMTS:	D1.0
15	D1.0	CM	Terayon	Tera152	CMTS41A	Rev. 2	D1.0
15	D1.0	CM	Saejin	Seep151	ECM210	6.62	D1.0
15	D1.0	CM	Mespro	Mespro151	SC-5100E	V1.2	D1.0
15	D1.0	CM	Terayon	Tera153	777CM2	V1.0	D1.0
15	D1.0	CM	Motorola	Moto152	FCM310	D	D1.0
15	D1.0	CM	Cisco	OCiso151	SB3100 Rev C	Rev C	D1.0
15	D1.0	CM	Thomson	Thom151	UBR 7200 VAR	A0	D1.0
15	D1.0	CM	Com21	Com21	DCM235Z35R	25	D1.0
15	D1.0	CM	CIS	Cis151	DP1110	6	D1.0
15	D1.0	CM	ElaaAG	Elaa151	WS-CM30EDTE	v1.0	D1.0
15	D1.0	CM	Motorola	Moto151	204	E	D1.0
15	D1.0	CM	GVC	GVC141	DCM 2000 475390-001-	475395-001-00 Rev 01	D1.0
14	D1.0	CM	DLINK	Dlink141	CM1004CON	Rev 31	D1.0
14	D1.0	CM	DX Antenna	Dxan141	DCM100	Rev 2.3	D1.0
14	D1.0	CM	Motorola	Moto142	DAZ8811	6.11	D1.0
14	D1.0	CM	Ericson	Eric142	MMLN 4004D	PowerCom	D1.0
14	D1.0	CM	Com21	Com141	HM200c	Rev R2B	D1.0
14	D1.0	CM	Ericson	Eric141	DP121	6.6	D1.0
14	D1.0	CM	Ariss	Ariss142	HM200c	Rev R2B	D1.0
14	D1.0	CM	Cisco	OCisc141	CMTS-1000	Rev 08	D1.0
14	D1.0	CM	Zoom	Zoom142	UBR 7200 VAR	A0	D1.0
14	D1.0	CM	Arribil	Arribil141	ACM6000EB	1.3	D1.0
14	D1.0	CM	Terayon	Tera141	5011	0293-01C	D1.0
14	D1.0	CM	Arribil	Arribil142	6009RE	1.3	D1.0
14	D1.0	CM	Arribil	Arribil141	ECM210	Rev 6.6	D1.0
14	D1.0	CM	Arribil	Arribil142	6009RU	2.0	D1.0
14	D1.0	CM	Arribil	Arribil141	CM2000	V25	D1.0
14	D1.0	CM	Arribil	Arribil142	DCM 225	Rev 11.10	D1.0
14	D1.0	CM	Arribil	Arribil141	SCM-110R Ether	0285-01	D1.0
14	D1.0	CM	Arribil	Arribil142	5001	Rev C	D1.0
14	D1.0	CM	Arribil	Arribil141	SB3100 Rev C	Rev 2.3	D1.0
14	D1.0	CM	Arribil	Arribil142	PCR-2600	Rev D	D1.0
14	D1.0	CM	Arribil	Arribil141	SB3100 Rev D	8	D1.0
14	D1.0	CM	Arribil	Arribil142	CMX-50	6.10	D1.0
14	D1.0	CM	Arribil	Arribil141	UM141	6.11	D1.0
14	D1.0	CM	Arribil	Arribil142	DAZ8811	Rev B	D1.0
14	D1.0	CM	Arribil	Arribil141	8R-003678-10	6.1	D1.0
14	D1.0	CM	Arribil	Arribil142	Superlink 2000	8.10	D1.0
14	D1.0	CM	Arribil	Arribil141	NSC200	D	D1.0
14	D1.0	CM	Arribil	Arribil142	Cuda	ubr203-41y5-	D1.0
14	D1.0	CM	Arribil	Arribil141	UBR224	A0	D1.0
14	D1.0	CM	Arribil	Arribil142	DAZ8813	6.6	D1.0
14	D1.0	CM	Arribil	Arribil141	3CR29220	2.00	D1.0
14	D1.0	CM	Arribil	Arribil142	CMEO33	V8.0	D1.0
14	D1.0	CM	Arribil	Arribil141	SB3100 Rev C	Rev C	D1.0
14	D1.0	CM	Arribil	Arribil142	Phazer	v3.2.1	D1.0
14	D1.0	CM	Arribil	Arribil141	3CR29210	6.0	D1.0
14	D1.0	CM	Arribil	Arribil142	CM115	B.2	D1.0
14	D1.0	CM	Arribil	Arribil141	100L	V8.0	D1.0
14	D1.0	CM	Arribil	Arribil142	110L	V2.2	D1.0
14	D1.0	CM	Arribil	Arribil141	80-000971-01	V2.2	D1.0
14	D1.0	CM	Arribil	Arribil142	CM201	V1.0	D1.0
14	D1.0	CM	Arribil	Arribil141	CMX110	Rev 1.0	D1.0
14	D1.0	CM	Arribil	Arribil142	CM200	6.0	D1.0
14	D1.0	CM	Arribil	Arribil141	CMEO30	8.10	D1.0
14	D1.0	CM	Arribil	Arribil142	CM200U	V24	D1.0
14	D1.0	CM	Arribil	Arribil141	2940	v6.0	D1.0
14	D1.0	CM	Arribil	Arribil142	DCM 225	V25	D1.0
14	D1.0	CM	Arribil	Arribil141	SM100	L3	D1.0
14	D1.0	CM	Arribil	Arribil142	High121	V25	D1.0
14	D1.0	CM	Arribil	Arribil141	Thom122	6.1	D1.0
14	D1.0	CM	Arribil	Arribil142	Thom121	V24	D1.0
14	D1.0	CM	Arribil	Arribil141	Tub121	V24	D1.0
14	D1.0	CM	Arribil	Arribil142	Tera121	6.1	D1.0
14	D1.0	CM	Arribil	Arribil141	ECM100	6.1	D1.0

12	D1.0	CM	Terayon	Tera122	ECM110	1.6.16	5.4	D1.0
12	D1.0	CM	Motorola	Moto122	MMLN3150A	2.0.051	74362G01	D1.0
12	D1.0	CM	Motorola	Moto121	MMLN2000A	1.0CL08	75087G01	D1.0
12	D1.0	CM	Toshiba	Tosh122	DAZ8811	1.7.002	6.1	D1.0
12	D1.0	CM	Dessault	Dass121	WD020	V2.80	v6.0	D1.0
12	D1.0	CM	Com21	Com123	DP111	1.6.16	6.1	D1.0
12	D1.0	CM	Toshiba	Tosh121	DAZ8811	1.6.016	6.1	D1.0
12	D1.0	CM	Com21	Com114	DP101	1.6.14	5.4	D1.0
11	D1.0	CM	Com21	Com112	CP3001	1.0.5.100	6500106 rev55	D1.0
11	D1.0	CM	Thomson	Thom111	DCM 205	ST 1.10	ver 16	D1.0
11	D1.0	CM	Com21	Com111	UBR7200	11.3(11a)NA1	A0	D1.0
11	D1.0	CM	Com21	Com113	CP3001	1.1.0.100	6500106 rev55	D1.0
11	D1.0	CM	Com21	Com111	DAZ881D	1.6.003	5.21	D1.0
11	D1.0	CM	General Instrument	Gen112	SB3100B	V3.0.7	-401Hrev8	D1.0
11	D1.0	CM	General Instrument	Gen111	CMX100	1.6.14	5.4	D1.0
11	D1.0	CM	General Instrument	Gen111	SB3100A	V3.0.7	-002RevA	D1.0
11	D1.0	CM	Com21	Com101	CP3001	1.0.1.100	650007 rev54	D1.0
10	D1.0	CM	Thomson	Thom101	DCM 105	ST 20.5.3	HW Ver 12	D1.0
10	D1.0	CM	Terayon	Tera101	ECM100	1.6.8	5.4	D1.0
9	D1.0	CM	Amis	Ami091	DE3801E02	2.0.0	03	D1.0
9	D1.0	CM	Toshiba	Tosh092	PCX1000DAZ8801F	Ver 1.6.003	Ver 5.21	D1.0
9	D1.0	CM	Philips	Phi091	PD100	1.76	1.1	D1.0
9	D1.0	CM	Sony	Sony091	CMR-1000	1.1 (0.76.1)	1.1	D1.0
9	D1.0	CM	Askey	Ask091	CME010	1.76	1.11	D1.0
9	D1.0	CM	Motorola	Moto091	MMLN4004D	5.01Op13b	MAC, 74029G01, Rev A Engine, MAVME2306- 900MTX-HI, 74612G01, Rev16=RevA MTX-LO, 74608G01, Rev 02 MPX, 74267G01, Rev C	D1.0
9	D1.0	CM	Cisco	Cisc091	UBR904	11.3(9)NA ubr904k1y4	A0	D1.0
8	D1.0	CM	Samsung	Sams091	SCM-100R	1.1.76	1.2	D1.0
8	D1.0	CM	3Com	3Com091	3CR282-DE56	12.30	A01-3	D1.0
8	D1.0	CM	Amis	Ami091	DE3804E25	1.100.3	02	D1.0
8	D1.0	CM	General Instrument	Gen091	SB2100	V1.1.1	X3002	D1.0
7	D1.0	CM	Toshiba	Tosh071	DAZ8801E	1.51k	5.2	D1.0
7	D1.0	CM	Cisco	Cisc071	UBR7200	11.3(7)NA	A0	D1.0
7	D1.0	CM	Thomson	Thom071	DCM 105	ST8.4	Pilot 3 c Rev's	D1.0, CH1.0

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1	<p>A communications network comprising:</p> <p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>Comcast owns and operates a cable communication network that complies with the DOCSIS 1.0, 1.1 and/or 2.0 specifications. (<i>See, e.g.,</i> <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>.) The DOCSIS 1.0, 1.1 and 2.0 specifications are directed toward providing internet access through such a communications network. (<i>See, e.g.,</i> DOCSIS 1.0, 1.1, and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and at § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial.<sup>1</sup> The aforementioned features of the Accused Instrumentalities perform substantially the same function (communicating data), in substantially the same way (by transmitting and receiving signals over a network), to achieve substantially the same result (enabling the exchange of data), as the recited limitation.</p>
	<p>a master unit;</p> <p>The Comcast cable network includes one or more DOCSIS compliant cable modem termination systems (CMTSes). Each CMTS can act as and acts as a master unit that communicates with a plurality cable modems (CMs). (<i>See, e.g.,</i> DOCSIS 1.0,</p>

<sup>1</sup> Any use within these charts of the words "limitation" or "portion" of a claim are for convenience, and do not constitute any admission that such language within the claim forms the boundaries of a claim element for purposes of the doctrine of equivalents. Moreover, no statement in these contentions should be construed as an admission that any language of the preamble is limiting. Rembrandt takes no position at this time regarding whether any language of any preamble is limiting.

	<p>1.1 and 2.0 at § 1.3.1 ("The transmission path over the cable system is realized at the headend by a Cable Modem Termination System (CMTS), and at each customer location by a Cable Modem (CM).")</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (a unit communicating with a plurality of remote units), in substantially the same way (connection to the plurality of remote units via a communications network), to achieve substantially the same result (data communications with a plurality of remote units), as the recited limitation.</p>
a plurality of remote units communicating with said master unit in a multidrop configuration;	<p>The Comcast cable network includes a plurality of cable modems (CMs). Each cable modem is remotely located at a customer location, where it is typically connected to a local computer or network of computers. A customer's computer or computer network communicates with a Comcast CMTS that, on information and belief, is typically located at a Comcast facility, through its CM. For example, to establish Internet connectivity, a residential customer's personal computer is connected to or otherwise communicates with a CM, and communicates through the CM with a remotely located Comcast CMTS.</p> <p>Each CMTS in the Comcast network typically services a plurality of CMs that are connected to the CMTS via a cable network. Thus, each CMTS acts as a master unit that communicates with a plurality of remote units in a multi-drop configuration. (See, e.g., DOCSIS 1.0, 1.1 and 2.0 at § 1.3.1 ("The transmission path over the cable system is realized at the headend by a Cable Modem Termination System (CMTS), and at each customer location by a Cable Modem (CM).") The plurality of remote units can be the plurality of CMs that communicate with each CMTS. Alternatively, the plurality of remote units can be the plurality of CMs together with the computers or computer networks to which each CM is attached.</p>



	<p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (a number of units in locations remote from a master unit communicating with a master unit in a configuration that involves one master unit and a plurality of remote units), in substantially the same way (by transmitting data to the master unit and receiving data from said master unit), to achieve substantially the same result (responding to the received data in time slots that are assigned to each application program), as the recited limitation.</p>
<p>wherein each of said remote units execute at least one application program, at least one of said remote units executing at least two application programs,</p>	<p>Each of the CMs communicating with a CMTS can execute and execute one or more application programs. The application programs can be one or more service flows or service flow managers running on each CM, one or more IP host applications running on each CM, or one or more end-user applications running on computers that are attached to each CM. On information and belief, at times one or more of the CMs communicating with a CMTS, or CMs together with the computers to which they are attached, executes two or more of the above identified application programs.</p> <p>For example, each CM can run one or more "services" or "service flows" to support communications with the CMTS. Each service or service flow has its own ID and independently communicates with the CMTS. (See, e.g., DOCSIS 1.0 at § 6.1.2.3 ("The concept of Service IDs is central to the operation of the MAC protocol. Service IDs provide both device identification and class-of-service management. In particular, they are integral to upstream bandwidth allocation. A Service ID defines a particular mapping between a CM and the CMTS. This mapping is the basis on which bandwidth is allocated to the CM by the CMTS and by which class of service is implemented . . . . The CMTS MAY assign one or more Service IDs (SIDs) to each CM, corresponding to the classes of service required by the CM.")); see also</p>

DOCSIS 1.1 at § 6.1.2.3 and DOCSIS 2.0 at § 8.1.2.3 (“The concept of Service Flows is central to the operation of the MAC protocol. Service Flows provide a mechanism for upstream and downstream Quality of Service management. In particular, they are integral to bandwidth allocation. A Service Flow ID defines a particular unidirectional mapping between a CM and the CMTS. Active Upstream Service Flow IDs also have associated Service IDs or SIDs. Upstream bandwidth is allocated to SIDs, and hence to CMs, by the CMTS. Service IDs provide the mechanism by which upstream Quality of Service is implemented. The CMTS MAY assign one or more Service Flow IDs (SFIDs) to each CM, corresponding to the Service Flows required by the CM.”).

In addition, each CM acts as an IP host, and can run one or more host IP applications such as SNMP, TFTP, or DHCP. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.1 and DOCSIS 2.0 at § 5.1 (“The CM and CMTS operate as forwarding agents and also as end-systems (hosts). . . . The principal function of the cable modem system is to transmit Internet Protocol (IP) packets transparently between the headend and the subscriber location. Certain management functions also ride on IP, so that the protocol stack on the cable network is as shown in Figure 3-1.”); see also DOCSIS 1.0 and 1.1 at § 3.4 and DOCSIS 2.0 at § 5.4 (“In addition to the transport of user data, there are several network management and operation capabilities which depend upon the Network Layer. These include: • SNMP (Simple Network Management Protocol, [RFC-1157]), MUST be supported for network management. • TFTP (Trivial File Transfer Protocol, [RFC-1350]), a file transfer protocol, MUST be supported for downloading operational software and configuration information, as modified by TFTP Timeout Interval and Transfer Size Options [RFC-2349] • DHCP (Dynamic Host Configuration Protocol, [RFC-2131]), a framework for passing configuration information to hosts on a TCP/IP network, MUST be supported.”).)

Similarly, each of the CMs together with the computers or computer networks to which they are attached can run one or more application programs such as a world wide web browser, an e-mail client, and/or a file sharing client or program.

In the event this limitation is construed or applied in such a way that it is found to be

	<p>not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (running a program, including, for one remote unit running at least two programs), in substantially the same way (executing instructions at the remote unit), to achieve substantially the same result (execute a program at the remote unit, including at least two programs at one of the remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
said remote units receiving messages outbound from said master unit and responding in a time slot assigned to each of said application programs;	<p>Each CM or CM together with the computer or computer network to which it is attached receives outbound messages from the CMTS in the downstream direction. For example, each CM receives an allocation MAP that is transmitted from the CMTS. (See, e.g., DOCSIS 1.0 at § 6.4.1 and DOCSIS 1.1 at § 7.1.1 ("The allocation map is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel."))</p> <p>The upstream channel in a DOCSIS communications network is slotted or divided into a plurality of TDMA time slots. Each CM or CM together with the computers or computer networks to which it is attached uses these time slots to transmit information to the CMTS. For at least certain portions of the MAP, the CMTS controls the usage of these time slots, and can assign particular CMs, particular service flows within CMs, and/or application programs running on computers that are attached to the CMs, to transmit in particular time slots through the downstream allocation MAP. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3 and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS . . . controls the allowed usage for each interval. Intervals may be granted for transmissions by</p>

	<p>particular CMs, or for contention by all CMs.”.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (receiving information from a central unit and responding in a manner that coordinates the transfer of information from the remote units to the central unit), in substantially the same way (sending information in assigned time slots), to achieve substantially the same result (transmitting information in a manner that helps avoid collisions), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>said master unit including a master network timing means with a period which is divided into a plurality of subframes,</p>	<p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features.</p> <p>The CMTS includes a 10.24 MHz clock that drives a 32 bit counter to provide a 32-bit timestamp having a period. On information and belief, the period is approximately 419 seconds. (See, e.g., DOCSIS 1.0 at § 6.3.2.1, DOCSIS 1.1 at § 6.3.2, and DOCSIS 2.0 at § 8.3.2 (Defining the CMTS’s SYNC timestamp as “The count state of an incrementing 32 bit binary counter clocked with the CMTS 10.24 MHz master clock.”))</p> <p>The CMTS counts a fixed number of TDMA time slots or “mini-slots” whose timing is based upon the 32 bit timestamp counter. (See, e.g., DOCSIS 1.0 at § 6.5.4, DOCSIS 1.1 at § 7.3.4, DOCSIS 2.0 at § 9.3.4.1.2 (Disclosing that the CMTS “counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. The least-significant bits (i.e., bit 0 to bit 25-M) of the mini-slot</p>

	<p>counter MUST match the most-significant bits (i.e., bit 6+M to bit 31) of the SYNC timestamp counter.”))</p> <p>The CMTS divides the fixed number of mini-slots in a TDMA frame into a plurality of allocation MAPS, each of which may be variable in length, but none of which may be greater than <math>2^{1/2}</math> or 4096 mini-slots in length. These allocation MAPS thus divide the mini-slot count of a full TDMA period into a plurality of subframes. (See, e.g., DOCSIS 1.0 at § 6.4.2, DOCSIS 1.1 at § 7.1.5 and DOCSIS 2.0 at § 9.1.5. (Indicating that the number of mini-slots in an allocation MAP “MAY vary from MAP to MAP,” but that the size of an allocation MAP “MUST NOT describe more than 4096 mini-slots into the future.”))</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities perform substantially the same function (providing timing intervals for the assignment of transmission opportunities), in substantially the same way (by dividing a fixed period of time into a plurality of subintervals or subframes), to achieve substantially the same result (defining timing intervals during which the remote units can be assigned to transmit to the master unit in a time division multiple access fashion), as the recited limitation. The structure corresponding to the foregoing limitation may include a plurality of CMs communicating with a CMTS, or, in the alternative, a plurality of CMs together with computers or computer networks to which they are attached.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
wherein each subframe is divided into said time slots, and each of said	As discussed above, at least portions of each allocation MAP is divided into a plurality of mini-slots. An application program running on a CM or on a computer



# EXHIBIT A PART 2

time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit to said master unit in a time division multiple access fashion; and	<p>or computer network attached to the CM can be assigned to transmit to the CMTS in one or more of the mini-slots that are defined in the allocation MAP. (See, e.g., DOCSIS 1.0 at § 6.4, DOCSIS 1.1 at § 7.1 and DOCSIS 2.0 at § 9.1 ("The upstream channel is modeled as a stream of mini-slots. The CMTS MUST generate the time reference for identifying these slots. It MUST also control access to these slots by the cable modems. For example, it MAY grant some number of contiguous slots to a CM for it to transmit a data PDU."))</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (providing intervals for the assignment of remote unit transmission opportunities), in substantially the same way (dividing a fixed sub-period into timeslots for transmission of data by each of the remote units), to achieve substantially the same result (transmitting data from a number of remote units in a manner that shares access to the network by a timing mechanism), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
said master unit including ranging means communicating with said master network timing means wherein a transmission time between said master unit and each of said respective remote units is calculated and transmitted from said master unit to each of said	<p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features.</p> <p>Each CMTS includes means to calculate and transmit the range to each of the CMs that are connected to that CMTS. (See, e.g., DOCSIS 1.0 at § 6.5, DOCSIS 1.1 at § 7.3 and DOCSIS 2.0 at § 9.3 ("[T]he cable modem MUST be able to time its transmissions precisely to arrive at the CMTS at the start of the assigned mini-slot. To accomplish this, two pieces of information are</p>

<p>needed by each cable modem: a global timing reference sent downstream from the CMTS to all cable modems; [and] a timing offset, calculated during a ranging process, for each cable modem.”))</p> <p>The CMTS’s ranging means include means to broadcast a synchronization signal to each of the CMs that are attached to it. The CMs synchronize their local clocks to the timestamp that is contained in this synchronization signal. (See, e.g., DOCSIS 1.0 at § 6.5.1, DOCSIS 1.1 at § 7.3.1 and DOCSIS 2.0 at § 9.3.1 (“The CMTS MUST create a global timing reference by transmitting the Time Synchronization (SYNC) MAC management message downstream at a nominal frequency. The message contains a timestamp that exactly identifies when the CMTS transmitted the message. Cable modems MUST then compare the actual time the message was received with the timestamp and adjust their local clock references accordingly.”))</p> <p>The CMTS’s ranging means also include means for the CMTS to grant intervals to each CM, during which each CM can transmit a range request signal to the CMTS. (See, e.g., DOCSIS 1.0 at § 6.4.1.1.3, DOCSIS 1.1 at § 7.1.2.3 and DOCSIS 2.0 at § 9.1.2.3 (“The Initial Maintenance IE provides an interval in which new stations may join the network. A long interval, equivalent to the maximum round-trip propagation delay plus the transmission time of the Ranging Request (RNG-REQ) message . . . MUST be provided to allow new stations to perform initial ranging.”); see also, DOCSIS 1.0 at § 6.4.1.1.4, DOCSIS 1.1 at § 7.1.2.4 and DOCSIS 2.0 at § 9.1.2.4 (“The Station Maintenance IE provides an interval in which stations are expected to perform some aspect of routine network maintenance, such as ranging or power adjustment.”))</p> <p>Based on the timing of one or more of the SYNC signal, the granting of an interval for a RNG-REQ message, and the receipt of the RNG-REQ message by the CMTS, the CMTS calculates a range delay for a given CM. On information and belief, ranging is performed in Comcast’s DOCSIS compliant cable network as follows, although no specific implementation is</p>	<p>respective remote units,</p>
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relied upon for purposes of Rembrandt's Preliminary infringement allegations as set forth herein. The CMTS periodically sends out time synchronization or SYNC messages to one or more attached CMs. The SYNC message contains a timestamp, and the CMs synchronize their local clocks to this timestamp, thereby ignoring any range or propagation delay  $T_{\text{RANGE}}$  in the transmission of the SYNC message. The CMTS also sends out one or more allocation MAPs that contain one or more intervals during which an attached CM can perform ranging. Each ranging interval specifies a time  $T_{\text{REQ}}$  at which an attached CM can transmit a ranging request message to the CMTS. However, because the CM is synchronized to a range delayed SYNC timestamp, it does not transmit its range request message until time  $T_{\text{REQ}} + T_{\text{RANGE}}$ . Moreover, due to the range delay, the CMTS does not receive the CMs range request message until time  $T_{\text{REQ}} + 2 T_{\text{RANGE}}$ . By noting the difference between the time it receives the CMs range request messages ( $T_{\text{REQ}} + 2 T_{\text{RANGE}}$ ), and the time it requested the messages ( $T_{\text{REQ}}$ ), the CMTS can calculate the range delay ( $T_{\text{RANGE}}$ ) to each CM.

Once a CMTS calculates the range delay to an attached CM, it transmits that information to the CM so that the CM can adjust its local transmission time. (See, e.g., DOCSIS 1.0 at § 6.5.3, DOCSIS 1.1 at § 7.3.3, and DOCSIS 2.0 at § 9.3.3.1 ("Once the CMTS has successfully received the Ranging Request message, it MUST return a Ranging Response message addressed to the individual cable modem. Within the Ranging Response message MUST be a temporary SID assigned to this cable modem until it has completed the registration process. The message MUST also contain information on RF power level adjustment and offset frequency adjustment as well as any timing offset corrections.))

In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the



	<p>same function (calculating range delay for one or more remote units and providing that range delay to the remote units), in substantially the same way (by measuring the delay in messages transmitted between the master unit and the respective remote units), to achieve substantially the same result (transmission of the range delay between the master unit and each of the remote units to synchronize the timing of transmissions between the master unit and remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
each of said respective remote units using said transmission time to adjust initiation of said time slots.	<p>Each CM uses the ranging offset that is calculated and sent to it by the CMTS to adjust its transmission time to account for range delays. (See, e.g., DOCSIS 1.0 and 1.1 at § 4.2.7, and DOCSIS 2.0 at § 6.2.19.1 ("Ranging Offset is the delay correction applied by the CM to the CMTS Upstream Frame Time derived at the CM. It is an advancement equal to roughly the round-trip delay of the CM from the CMTS, and is needed to synchronize upstream transmissions in the TDMA scheme. . . . The CM MUST implement the correction with resolution of at most 1 symbol duration (of the symbol rate in use for a given burst), and (other than a fixed bias) with accuracy within <math>\pm 0.25 \mu\text{sec}</math> plus <math>\pm 1/2</math> symbol owing to resolution."))</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (adjusting the initiation of transmission in timeslots by respective remote units), in substantially the same way (using range delay transmission times provided by the master unit), to achieve substantially the same result (adjustment of the initiation of time slots based on the received transmission times), as the recited limitation.</p>

		<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
2	<p>The network of claim 1 wherein said remote units include a reservation request generator which activates a reservation request bit for requesting an additional time interval inbound to said master unit, and</p>	<p>In a DOCSIS compliant system, the CMs may request and may be granted bandwidth (time slots) that are assigned by the CMTS. The CMs then transmit data in the assigned time slots, and can set a "piggyback" bit in the header portion of the transmitted data packet to request additional time slots. (See, e.g., DOCSIS 1.0 at § 6.4.2.1 ("Only one type of upstream request is inherent to the allocation protocol: a request for upstream bandwidth. This request MAY be transmitted any time that either a request or a data PDU is allowed from the particular station. It MAY be transmitted during an interval described by any of: A Request IE; A Request/Data IE<sup>6</sup>; A Data Grant IE. In addition, it MAY be piggybacked<sup>7</sup> on a data transmission. The request includes: The Service ID making the request; [and] The number of mini-slots or ATM cells requested"); see also DOCSIS 1.1 at § 7.1.3 and DOCSIS 2.0 at § 9.1.3.) When a CM piggybacks a request for additional time slots, it sets at least one bit in the Extended Header portion of the MAC layer Packet Data PDU (See, e.g., DOCSIS 1.0 at § 6.4.2.1 fn. 7 ("When piggybacked, these values are carried in the Extended Header (Section 6.2.6, EH_TYPE=1)."); see also DOCSIS 1.1 at § 7.1.3 and DOCSIS 2.0 at § 9.1.3.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (generating a request for an additional time interval), in substantially the same way (by activating a bit or bits to request the upstream bandwidth), to achieve substantially the same result (request additional time intervals for transmission opportunities by a remote unit), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused</p>

		Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).
	wherein said master unit includes a reservation request processor communicating to said master network timing means, said reservation request processor being responsive to said reservation request bit.	<p>On information and belief, when a CMTS receives a data packet from a CM, it checks the data packet's header to determine whether the extended header is used, whether bits in the extended header indicate a piggyback request for additional time slots, and if so how many additional time slots the CM is requesting. (See, e.g., DOCSIS 1.0 and 1.1 at § 6.2.6, and DOCSIS 2.0 at § 8.2.6 ("A compliant CMTS &amp; CM MUST support extended headers."))</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (responding to a request for additional time slots), in substantially the same way (by finding and responding to one or more reservation request bits transmitted by a remote unit), to achieve substantially the same result (reserve additional time slots for transmission of data by the remote unit), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
11	The network of claim 2 wherein said time slot comprises a format so as to include	<p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>On information and belief, data is sent over the Comcast cable network in a format, for example the form of a Physical Media Dependent ("PMD") data frame that is FDMA/TDMA burst modulated. (See, e.g., DOCSIS 1.0 and 1.1 at § 4.2.1 ("The</p>

	<p>upstream Physical Media Dependent (PMD) sublayer uses a FDMA/TDMA burst modulation format. . . . Each burst supports a flexible modulation, symbol rate, preamble, randomization of the payload, and programmable FEC encoding.”); <i>see also</i> DOCSIS 2.0 at § 6.2.1.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (communicating data), in substantially the same way (by transmitting and receiving formatted signals), to achieve substantially the same result (enabling the exchange of data), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
a preamble,	<p>The PMD burst modulated data frame contains a preamble. (<i>See, e.g.,</i> DOCSIS 1.0 and 1.1 at § 4.2.1 (“The upstream Physical Media Dependent (PMD) sublayer uses a FDMA/TDMA burst modulation format. . . . Each burst supports a flexible modulation, symbol rate, preamble, randomization of the payload, and programmable FEC encoding.”); <i>see also</i> DOCSIS 2.0 at § 6.2.1.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (providing a signal for synchronization of the timing of communications between the master unit and remote units), in substantially the same</p>

	<p>way (by placing preamble data in one or more time slot), to achieve substantially the same result (to allow synchronization of communications between the master unit and remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
a poll response data bit,	<p>On information and belief, CMTSes in the Comcast cable network can poll one or more CMs to which they are attached using either directed Request or directed Request/Data IEs, or a real-time or non-real time polling service, and the CMs can send one or more data bits to the CMTSes in response to being polled by those IEs or polling services. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If unicast, this is an invitation for a particular CM to request bandwidth."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."); see also, DOCSIS 1.1 at § 8.2.4 and DOCSIS 2.0 at § 10.2.4 ("The Non-Real-Time Polling Service (nrPS) . . . offers unicast polls on a regular basis. . . . In order for this service to work correctly, the Request / Transmission Policy setting . . . SHOULD be such that the CM is allowed to use contention request opportunities. . . . All other bits of the Request/Transmission Policy are not relevant to the fundamental operation of this scheduling service and should be set according to network policy."); see also, DOCSIS 1.1 at § 8.2.2 and DOCSIS 2.0 at § 10.2.2 ("The Real-Time Polling Service (rPS) . . . offers real-time, periodic, unicast request opportunities . . . In order for this service to work correctly, the Request / Transmission Policy. . . SHOULD be such that the CM is prohibited</p>



	<p>from using any contention request or request/data opportunities. The Request / Transmission Policy SHOULD also prohibit piggyback requests.) While the DOCSIS standard indicates the piggyback or reservation request mechanism recited in claim 2 may be prohibited when the real-time polling service is used, it does not require that it be prohibited. Moreover, the DOCSIS standard allows piggyback requests to be made when polling is done using unicast Request or Request/Data IEs, and the non-real-time polling service.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (providing data in response to a received poll from a master unit), in substantially the same way (addition of poll response data in a transmission from a remote unit to the master unit), to achieve substantially the same result (poll response data in inbound traffic), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
said reservation request bits,	<p>As discussed above, when a CM transmits data, it can set a piggyback bit in the header portion of the transmitted data packet to request additional time slots. (See, e.g., DOCSIS 1.0 at § 6.4.2.1; DOCSIS 1.1 at § 7.1.3 and DOCSIS 2.0 at § 9.1.3)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the</p>

	<p>same function (requesting an additional time intervals), in substantially the same way (by adding a reservation request bit to a data transmission from a remote unit to the master unit), to achieve substantially the same result (request an additional time interval by the remote unit), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
at least one priority bit and	<p>As discussed above, when a CM sets bits in the "piggyback" field of the extended MAC header portion of a MAC data frame, it includes bits indicating the service flow ID or SID of the service flow that is requesting the additional time slots. (See, e.g., DOCSIS 1.0 at § 6.4.2.1 ("Only one type of upstream request is inherent to the allocation protocol: a request for upstream bandwidth. This request MAY be transmitted any time that either a request or a data PDU is allowed from the particular station. It MAY be transmitted during an interval described by any of: A Request IE; A Request/Data IE<sup>6</sup>; A Data Grant IE. In addition, it MAY be piggybacked<sup>7</sup> on a data transmission. The request includes: The Service ID making the request; [and] The number of mini-slots or ATM cells requested"); see also DOCSIS 1.1 at § 7.1.3 and DOCSIS 2.0 at § 9.1.3.)</p> <p>The SID of the service flow requesting the additional data grant is associated with a QoS parameter that determines the priority of the service flow's data request. (See, e.g., DOCSIS 1.0 at § 6.3.2.7 (Indicating that a CMTS must generate a Registration Response message that includes Service Class Data including a "Service ID / service class tuple for each class of service granted"); see also DOCSIS 1.1 at § 8.1 and DOCSIS 2.0 at § 10.1 ("The principal mechanism for providing enhanced QoS is to classify packets traversing the RF MAC interface into a Service Flow. A Service Flow is a unidirectional flow of packets that is provided a particular Quality of Service. The CM and CMTS provide this QoS by shaping, policing, and prioritizing traffic according to the QoS Parameter Set defined for the Service Flow."))</p> <p>In the event this limitation is construed or applied in such a way that it is found to be</p>

	<p>not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (defining the relative priority or importance of a remote unit transmission), in substantially the same way (by adding one or more bits indicating the priority of the remote unit's transmission), to achieve substantially the same result (provide a priority indicator for use in determining the relative priority of a remote unit's transmission), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
error detection bit.	<p>As explained above, the PMD data frame is FEC or Forward Error Correction encoded, and contains one or more error detection bits. (See, e.g., DOCSIS 1.0 and 1.1 at § 4.2.1 ("The upstream Physical Media Dependent (PMD) sublayer uses a FDMA/TDMA burst modulation format. . . . Each burst supports a flexible modulation, symbol rate, preamble, randomization of the payload, and programmable FEC encoding.")); see also DOCSIS 2.0 at § 6.2.1.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (providing data for detection of errors in inbound transmissions), in substantially the same way (addition of a error detection bit to inbound data), to achieve substantially the same result (a data bit included in inbound data for use in detecting errors in inbound data), as the recited limitation.</p>



	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p> <p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features.</p> <p>On information and belief, each CMTS in the Comcast network uses the ranging means discussed above in reference to claim 1 to provide feedback correction to the range offset that is initially calculated for each CM. (See, e.g., DOCSIS 1.0 at § 6.4.1.1.4, DOCSIS 1.1 at § 7.1.2.4 and DOCSIS 2.0 at § 9.1.2.4 ("The Station Maintenance IE provides an interval in which stations are expected to perform some aspect of routine network maintenance, such as ranging or power adjustment."))</p> <p>This feedback correction includes any correction due to a drift in the CMs local clock. (See, e.g., DOCSIS 1.0 and 1.1 at § 4.2.7 ("Ranging Offset is the delay correction applied by the CM to the CMTS Upstream Frame Time derived at the CM. . . . The CMTS MUST provide feedback correction for this offset to the CM, based on reception of one or more successfully received bursts. . . . The CM MUST implement the correction with resolution of at most 1 symbol duration."); see also DOCSIS 2.0 at § 6.2.19.)</p> <p>On information and belief, the CMTS calculates CM clock drifts as follows, although no specific implementation is relied upon for purposes of Rembrandt's Preliminary infringement allegations as set forth herein. The CMTS periodically sends out time synchronization or SYNC messages to all attached CMs. The SYNC messages contain a timestamp, and the CMs synchronize their local clocks to this timestamp, thereby ignoring any range or propagation delay <math>T_{\text{range}}</math> in the transmission of the SYNC message.</p> <p>The CMTS also sends out one or more allocation MAPs that contain one or more maintenance intervals during which an attached CM can perform ranging. Each</p>
12	<p>The network of claim 1 wherein the master unit includes means for calculating clock drifts of the remote units and issuing reset commands to correct the same whereby each remote unit determines its transmit epoch accurately, thereby minimizing guard time while maintaining contention-free transmission to said master unit, said means for calculating clock drifts and issuing reset commands being in communication with said master network timing means.</p>

maintenance interval is directed to a specific CM, and requests the CM to send a range request message at a global time  $T_{REQ}$  to correct for range delays, network delay, and or drifts in the CMs local clock. However, because the CM is synchronized to a range delayed SYNC timestamp, it does not transmit its range request message until time  $T_{REQ} + T_{RANGE}$ . Moreover, due to the range delay, the CMTS does not receive the CM's range request messages until time  $T_{REQ} + 2$

$T_{RANGE}$ .

By noting the difference between the time it receives the CMs range request messages ( $T_{REQ} + 2 T_{RANGE}$ ) and the time it requested the messages ( $T_{REQ}$ ), the CMTS can calculate the range delay ( $T_{RANGE}$ ) of the CM.

Once a CMTS determines the range delay to the CM, which includes any network delays or delays due to local clock drifts, it transmits that information to the CM so that the CM can adjust its local transmission times or reset its clock. (See, e.g., DOCSIS 1.0 at § 6.5.3, DOCSIS 1.1 at § 7.3.3, and DOCSIS 2.0 at § 9.3.3.1 ("Once the CMTS has successfully received the Ranging Request message, it MUST return a Ranging Response message addressed to the individual cable modem. Within the Ranging Response message MUST be a temporary SID assigned to this cable modem until it has completed the registration process. The message MUST also contain information on RF power level adjustment and offset frequency adjustment as well as any timing offset corrections.))

In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features of the Accused Instrumentalities perform substantially the same function (calculating alterations in relative clock time and issuing reset commands to modify remote unit timing), in substantially the same way (by monitoring alterations in relative clock time in the remote units and issuing reset commands under given circumstances, for example when they become too large), to

		<p>achieve substantially the same result (maintaining accurate timing of transmissions from respective remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
14	<p>A method for a plurality of remote units to operate a plurality of application programs in a multidrop configuration, comprising the steps of:</p>	<p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>Comcast owns and operates a cable communications network that complies with the DOCSIS 1.0, 1.1 and/or 2.0 specifications. (<i>See, e.g.,</i> <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>). The DOCSIS 1.0, 1.1 and 2.0 specifications describe a method for providing internet access through such a communications network. (<i>See, e.g.,</i> DOCSIS 1.0, 1.1, and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and at § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network."))</p> <p>The method described in the DOCSIS 1.0, 1.1 and 2.0 specifications allows a plurality of application programs that are located either on a plurality of CMs or on computers or computer networks that are attached to the plurality of CMs to communicate with the CMTS in a multi-drop configuration. (<i>See, e.g.,</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.3.1 ("The transmission path over the cable system is realized at the headend by a Cable Modem Termination System (CMTS), and at each customer location by a Cable Modem (CM)."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported</p>

	<p>differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (operating a number of application programs on a number of units located remotely from and communicating with a master unit), in substantially the same way (transmitting data between the master unit and respective remote units), to achieve substantially the same result (operate the number of application programs on the number of remotely located units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
calculating and storing in said master unit inbound and outbound transmission times between the master unit and said remote units;	<p>The CMTS generates and stores an allocation MAP that indicates future times during which CMs are expected to send ranging requests. The CMTS then compares the inbound times of the CMs ranging requests with their expected inbound times (as indicated on the stored allocation MAP) to determine the CMs range offset.</p> <p>Each CMTS calculates and transmits the range to each of the CMs that are connected to that CMTS. (See, e.g., DOCSIS 1.0 at § 6.5, DOCSIS 1.1 at § 7.3 and DOCSIS 2.0 at § 9.3 ("[T]he cable modem MUST be able to time its transmissions precisely to arrive at the CMTS at the start of the assigned mini-slot. To accomplish this, two pieces of information are needed by each cable modem: a global timing reference sent downstream from the CMTS to all cable modems; [and] a timing offset, calculated during a ranging process, for each cable modem."))</p> <p>The CMTS's ranging means include means to broadcast a synchronization signal to each of the CMs that are attached to it. The CMs synchronize their local clocks to the timestamp that is contained in this synchronization signal. (See, e.g., DOCSIS 1.0 at § 6.5.1, DOCSIS 1.1 at § 7.3.1 and DOCSIS 2.0 at § 9.3.1 ("The CMTS MUST create a global timing reference by transmitting the Time Synchronization (SYNC) MAC management message downstream</p>

at a nominal frequency. The message contains a timestamp that exactly identifies when the CMTS transmitted the message. Cable modems MUST then compare the actual time the message was received with the timestamp and adjust their local clock references accordingly.”))

The CMTS’s ranging means also include means for the CMTS to grant intervals to each CM, during which each CM can transmit a range request signal to the CMTS. (See, e.g., DOCSIS 1.0 at § 6.4.1.1.3, DOCSIS 1.1 at § 7.1.2.3 and DOCSIS 2.0 at § 9.1.2.3 (“The Initial Maintenance IE provides an interval in which new stations may join the network. A long interval, equivalent to the maximum round-trip propagation delay plus the transmission time of the Ranging Request (RNG-REQ) message . . . MUST be provided to allow new stations to perform initial ranging.”); see also, DOCSIS 1.0 at § 6.4.1.1.4, DOCSIS 1.1 at § 7.1.2.4 and DOCSIS 2.0 at § 9.1.2.4 (“The Station Maintenance IE provides an interval in which stations are expected to perform some aspect of routine network maintenance, such as ranging or power adjustment.”))

Based on the timing of one or more of the SYNC signal, the granting of an interval for a RNG-REQ message, and the receipt of the RNG-REQ message by the CMTS, the CMTS calculates a range delay for a given CM. On information and belief, ranging is performed in Comcast’s DOCSIS compliant cable network as follows, although no specific implementation is relied upon for purposes of Rembrandt’s Preliminary infringement allegations as set forth herein. The CMTS periodically sends out time synchronization or SYNC messages to one or more attached CMs. The SYNC message contains a timestamp, and the CMs synchronize their local clocks to this timestamp, thereby ignoring any range or propagation delay <sup>TRANSE</sup> in the transmission of the SYNC message. The CMTS also sends out one or more allocation MAPs that contain one or more intervals during which an attached CM can perform ranging. Each ranging interval specifies a time <sub>TRNG</sub> at which an attached CM can transmit a ranging request message to the CMTS. However, because the CM is synchronized to a range delayed



	<p>SYNC timestamp, it does not transmit its range request message until time <math>T_{REQ} + T_{RANGE}</math>. Moreover, due to the range delay, the CMTS does not receive the CMs range request message until time <math>T_{REQ} + 2 T_{RANGE}</math>. By noting the difference between the time it receives the CMs range request messages (<math>T_{REQ} + 2 T_{RANGE}</math>), and the time it requested the messages (<math>T_{REQ}</math>), the CMTS can calculate the range delay (<math>T_{RANGE}</math>) to each CM.</p> <p>On information and belief, the range delay to each CM is stored in the CMTS. The range delay is a representation of the inbound and outbound transmission times between the CMTS and the CM.</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (obtaining transmission times between the master unit and the remote units), in substantially the same way (by determining time differences related to transmissions between the master unit and the respective remote units), to achieve substantially the same result (minimizing unused bandwidth by more precisely timing transmissions between the master unit and each of the remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and	<p>The CMTS includes a 10.24 MHz clock that drives a 32 bit counter to provide a 32-bit timestamp having a period. On information and belief, the period is approximately 419 seconds. (See, e.g., DOCSIS 1.0 at § 6.3.2.1, DOCSIS 1.1 at § 6.3.2, and DOCSIS 2.0 at § 8.3.2 (Defining the CMTS's SYNC timestamp as "The count state of an incrementing 32 bit binary counter clocked with the CMTS 10.24 MHz master clock."))</p>

<p>assigning a slot to each of said application programs in said one of said remote units;</p>	<p>The CMTS counts a fixed number of TDMA time slots or "mini-slots" whose timing is based upon the 32 bit timestamp counter. (See, e.g., DOCSIS 1.0 at § 6.5.4, DOCSIS 1.1 at § 7.3.4, DOCSIS 2.0 at § 9.3.4.1.2 (Disclosing that the CMTS "counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. The least-significant bits (i.e., bit 0 to bit 25-M) of the mini-slot counter MUST match the most-significant bits (i.e., bit 6+M to bit 31) of the SYNC timestamp counter."))</p> <p>The CMTS divides the fixed number of mini-slots in a TDMA frame into a plurality of allocation MAPs, each of which may be variable in length, but none of which may be greater than <math>2^{12}</math> or 4096 mini-slots in length. These allocation MAPs thus divide the mini-slot count of a full TDMA period into a plurality of subframes. (See, e.g., DOCSIS 1.0 at § 6.4.2, DOCSIS 1.1 at § 7.1.5 and DOCSIS 2.0 at § 9.1.5. (Indicating that the number of mini-slots in an allocation MAP "MAY vary from MAP to MAP," but that the size of an allocation MAP "MUST NOT describe more than 4096 mini-slots into the future."))</p> <p>An application program running on a CM or on a computer or computer network attached to the CM is assigned by the CMTS to transmit to the CMTS in one or more mini-slots in the allocation MAP subframe. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3 and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS . . . controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs.").)</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (assigning a time slot to each</p>
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	<p>application program in the remote units), in substantially the same way (dividing a fixed period of time into a plurality of intervals and subintervals (time slots), and assigning a time slot to the application programs on the remote units), to achieve substantially the same result (transmitting data from applications on the remote units in a manner that shares access to the network via a timing mechanism), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>transmitting from said master unit to each of said respective remote units the transmission time between said master unit and said respective remote unit, each of said respective remote units using said transmission time to adjust initiation of said slots; and</p>	<p>Once a CMTS determines the range delay to the CMs that are attached to it, the CMTS transmits that information to the CMs. (See, e.g., DOCSIS 1.0 at § 6.3.2.5m DOCSIS 1.1 at § 6.3.6 ("A Ranging Response MUST be transmitted by a CMTS in response to received RNG-REQ." The response MUST include "[t]he time by which to offset frame transmission so that frames arrive at the expected mini-slot time at the CMTS."); see also DOCSIS 2.0 at § 8.3.6)</p> <p>Each CM uses the ranging offset or transmission time that is calculated and sent to it by the CMTS to adjust its transmission time to account for range delays. (See, e.g., DOCSIS 1.0 and 1.1 at § 4.2.7, and DOCSIS 2.0 at § 6.2.19.1 ("Ranging Offset is the delay correction applied by the CM to the CMTS Upstream Frame Time derived at the CM. . . . The CM MUST implement the correction with resolution of at most 1 symbol duration."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (transmitting information to the</p>



	<p>remote units for use in adjusting the timing of transmission), in substantially the same way (by transmitting the transmission time between the master unit and the respective remote units, whereby the respective remote units use the transmission times to adjust initiation of transmissions), to achieve substantially the same result (initiation of transmissions within time slots using the transmission times between the master unit and the respective remote units), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>transmitting data from each of said remote units to said master unit in a time division multiple access configuration wherein each application in each remote unit transmits during said assigned subframe.</p>	<p>The allocation MAP's mini-slots are divided into time slots to allow TDMA data transmission. For at least certain portions of the MAP, the CMTS controls the usage of these time slots, and can assign them to application programs that are running on the CMTS, particular service flows within CMTs, and/or application programs running on computers that are attached to the CMTs, to allow the transmission of data in one or more assigned time slots. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3 and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMTs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS . . . controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMTs, or for contention by all CMTs."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (transmitting information to a central unit in a manner that coordinates the transfer of information from the remote units to the central unit), in substantially the same way (transmitting data from the remote unit to the central unit in a time division multiple access fashion), to achieve substantially the same result (transmitting information in a manner that helps avoid</p>

	collisions), as the recited limitation.
	This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION, COMCAST  
CABLE COMMUNICATIONS, LLC, and  
COMCAST OF PLANO, LP,

Defendant.

Case No. 2:05-CV-443 (TJW)

Jury Trial Demanded

**PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND PRELIMINARY  
INFRINGEMENT CONTENTIONS**

**Preliminary Infringement Analysis for U.S. Patent No. 5,719,858**

**A. Identification of Infringed Claims**

Pursuant to Local Patent Rule 3-1(a), Rembrandt hereby identifies claims 1, 7, 8, 9, 10, 11, 15, 20 and 26 of U.S. Patent No. 5,719,858 (“the ‘858 patent”) as infringed by defendants.

**B. Identification of Accused Instrumentalities**

Defendants infringe, induce or contribute to the infringement of claims 1, 7, 9, 10, 11, 15, 20 and 26 of the ‘858 patent by their sale, lease or use of a high speed cable network that employ cable modems and cable modem termination systems that have the capability of being operated in compliance with the Data-Over-Cable Service Interface Specification (DOCSIS), versions ANSI/SCTE 22-1, dated 2002 (“DOCSIS 1.0”), SP-RFiv1.1-C01-050907, dated September 7, 2005 (“the DOCSIS 1.1 standard”) and SP-RFiv2.0-I09-050812, dated August 12, 2005 (the “DOCSIS 2.0 standard”). It is believed that all cable modems and cable modem termination systems sold, leased, or used by Defendants conform to either the DOCSIS 1.0, 1.1 or 2.0 standards.

Accordingly, pursuant to Local Patent Rule 3-1(b), Rembrandt identifies as the Accused Instrumentalities (1) Comcast’s high speed cable modem network and infrastructure, including any DOCSIS compliant cable modems and DOCSIS compliant cable modem termination systems configured for use in the Defendant’s cable modem network (“Accused System”), (2) Comcast’s use or operation of its high speed cable modem network and infrastructure (“Accused Method”), and (3) any computer software (including firmware, whether stored on an EPROM, EEPROM, field programmable gate array, or otherwise) configured for use in Comcast’s high speed cable modem network and infrastructure, including in any DOCSIS compliant cable modems (“Accused CM Software”) and DOCSIS compliant cable modem termination systems (“Accused CMTS Software”), (collectively, “Accused Software”).

The DOCSIS compliant CMs and CMTSes configured for use in Comcast's high speed cable modem network include, without limitation, those products identified in Exhibit A, attached hereto. Rembrandt is not currently aware of the names or model numbers of all the CMs and CMTSes used by Defendants or by customers of Defendants, and reserves the right to modify or supplement the attached list as discovery progresses.

Rembrandt reserves the right to add additional Accused Instrumentalities as discovery progresses

**C. Preliminary Infringement Claim Chart**

Pursuant to Local Patent Rule 3-1(c), plaintiff provides the following claim chart, attached hereto as Exhibit B, that explains how Defendants infringe the asserted claims in connection with their sale, offer for sale, lease, use or operation of a high speed cable modem network that includes DOCSIS compliant CMs, CMTSes. For clarity and convenience, the following claim charts primarily cite to the disclosure found in the DOCSIS 1.0 specification, but the same analysis applies to the DOCSIS 1.1 and 2.0 specifications, as DOCSIS 1.1 and 2.0 CMs and CMTSes are backwards compatible with DOCSIS 1.0 CMs and CMTSes, respectively. See, e.g., DOCSIS 1.1 specification at Appendix G ("Besides supporting a rich set of QoS features for DOCSIS 1.1 CMs, the DOCSIS 1.1 CMTS must be backwards compatible with a DOCSIS 1.0 CM. Furthermore, it is necessary for a 1.1 CM to function like a 1.0 CM when interoperating with a 1.0 CMTS."); see also DOCSIS 2.0 specification at Annex G ("As well as supporting DOCSIS 2.0 capable CMs, the DOCSIS 2.0 CMTS must be backwards compatible with DOCSIS 1.0 and DOCSIS 1.1 CMs. Furthermore, it is necessary for a DOCSIS 2.0 CM to function like a 1.0 CM when interoperating with a 1.0 CMTS and to function like a 1.1 CM when interoperating

with a 1.1 CMTS.”). Other citations are included for reference, but any citations should not be construed as limiting.

**D. Reliance on the Doctrine of Equivalents**

Pursuant to Patent Local Rule 3-1(d), Plaintiff presently contends that Defendants sale, offer for sale, lease, use or operation of a high speed cable modem network that includes DOCSIS 1.0, 1.1 and 2.0 compatible CMs, CMTSes literally infringes the identified claims. In the alternative, Plaintiff reserves the right to rely on the doctrine of equivalents should claim construction or discovery determinations or facts of which Plaintiff is not currently aware suggest such reliance. Plaintiff has included certain contentions regarding doctrine of equivalents, but reserves the right to modify or supplement any such contentions to the extent made relevant by the Court’s claim construction ruling.

In the event that discovery reveals that the Accused Instrumentalities utilized by Defendants implement the claimed invention in software, Plaintiff reserves the right, pursuant to Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h), to provide supplemental infringement contentions within 30 days of the production of source code for such software, should such supplemental contentions be necessary.

In the following claim charts, Plaintiff has subdivided each claim element into sub-elements to better explicate where on the Accused Instrumentalities each element may be found. The subdivisions in the following chart should not be taken as an indication of the boundaries of claim elements for the purposes of determining infringement under the doctrine of equivalents.

**E. Statement of Earliest Priority Date**

Pursuant to Patent Local Rule 3-1(e), Plaintiff states that the earliest priority date all claims of the ’858 Patent are entitled to is the July 31, 1995 filing date of the ’858 patent.

**F. Identification of Instrumentalities Embodying the Patent**

Pursuant to Patent Local Rule 3-1(f), Plaintiff states that it does not manufacture any products that embody the claims of the '858 Patent.

PARKER & BUNT, P.C.

/s/ Robert Christopher Bunt

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## CableHome® - PacketCable™ Certified Products - 10/26/05

CH = CableHome D = OCSIS PC = PacketCable

Beginning with Certification Wave 28, products may be awarded certification/qualification of multiple specifications through the CableLabs "combined certification program".

Note that combined certification will not apply retroactively to any product certified prior to Certification Wave 28, unless that product is submitted for re-certification.

Disclaimer: The model number, software version and hardware version information is provided by the vendor when submitting product for certification and CableLabs assumes no responsibility for accuracy or completeness of that information.

\* This product is certified only for the uses as defined in the executive summary of the certification application.

CW Version	Type	Manufacturer	CL ID	Model #	SW Version	HW Version	OEM Vendor ID	Spec Combo - Certified As	Verified For Interoperability
39 D2.0	CM	WideView Technology	Wide391	WM-100	17.1.7.17	35.4.2		D1.1, D2.0	
39 C1.1	Embedded PS	SMC	Smc391	SMC8014WG-CHM	3.17.11	1.85		D1.1, D2.0, CH1.1	
38 D2.0	CM	Askey	Ask391	CHM390	2.0.3.8.5	1.0		D1.1, D2.0	
38 D1.1	CM	Tollgrade	Tol381		1.0.2	1.0.0		D1.1, D2.0	
38 D2.0	DSG eCM	Pace	Pac381	TDC775D	3.7.16001	V1.0		D1.1, D2.0	X
38 D2.0	CM	Aris	Art381	TM502G	4.5.0	D1		D1.1, D2.0	
38 PC1.0 In D2.0	EMTA	Motorola	Mot382	SBV5200	SBV5200-2.1.3710.1-	1		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Motorola	Mot383	SBV5121	SBV5121-2.17.5.23-	1		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Pace	Pac382	DV315	V05.38.01	V1.0		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Scientific Atlanta	Sci382	DP22203	V2.0.21.254	1.0		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Thomson	Thom381	DP22223	V2.0.21.154	1.0		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Thomson	Thom382	DHG535	ST70.01.00	1.0		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Amstel	Amst381	DHG535	ST62.06.00	5.0		D1.1, D2.0, PC1.0	
38 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link383	U10C021	4.71.1001	2.31		D1.1, D2.0, CH1.1	
38 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link382	WCG104	2.0.3.7.16	2.0		D1.1, D2.0, CH1.1	
38 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link382	CMP2008	2.0.3.7.16	1.0		D1.1, D2.0, PC1.0	
38 C1.1	Embedded PS	Motorola	Mot381	SRG940	SRG940-2.1.1.1-	1		D1.1, D2.0, CH1.1	
38 D2.0	CM	Alpha CM-H	Alph381	Alpha CM-H	2.01.01.AH1.0	1.0		D1.1, D2.0	
38 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link381	CMP3008	17.0.5.23	56.0		D1.1, D2.0, PC1.0	
37 P1.1	MG	Nuera	4Nuor371	BTX-4K	1.1	A		PC1.0, PC1.1	
37 P1.1	MGC	Siemens	3Siem371	Surpass HQ 8000	06.04.01.US.05	Sun Microsystems Netra 1400T		PC1.0, PC1.1	
37 P1.1	MGC	Nortel	3Nor371	CS 2000 MGC	SN08.PSM	SN08.PHM		PC1.0, PC1.1	
37 P1.1	CMS	Siemens	0Siem371	Surpass HQ 8000	06.04.01.US.05	Netra 1400T		PC1.0, PC1.1	
37 P1.1	CMS	Nortel	0Nor371	CS 2000 CMS	SN08.PSC	Sun Microsystems Netra 1400T		PC1.0, PC1.1	
37 D2.0	CM	Turbocomm	Turb371	EC-420	17.0.1.11	26.2		D1.1, D2.0	
37 D2.0	CM	Motorola	Mot371	SB5121	SB5121-2.17.0.12-	1.0		D1.1, D2.0	
37 D2.0	CM	Asustek	Asus371	ACM6048EB	3.7.7	3.00		D1.1, D2.0	
35 D1.1	CM	Toshiba	Tos382	PCY2000	2.1R.007	3.21		D1.1	
35 D2.0	CM	Toshiba	Tos381	PCX3200	8.43.2	25.0.0		D1.1, D2.0	
35 D2.0	CM	Aris	Art351	TTM402P Phase 2	4.4.1	32		D1.1, D2.0	
34 PC1.0 In D2.0	EMTA	Thomson	Thom341	DHG525	ST62.06.00	5.0		D1.1, D2.0, PC1.0	
34 PCMM In D2.0	CMTS-MM	Motorola	2Mot341	BSR 64000	4.1.0708P10.12.KRAU	CHS-0009-01		D2.0, PCMM	
34 PCMM	Policy Server	Telcordia	5Telc341	Policy Manager 1.0	PS-R1.0-200502091200	SUNW.Ultra-60		PCMM	
34 P1.1	MG	Cisco	4Cisc341	MGX8800	5.50	VXSM		PC1.0, PC1.1	
34 PC1.0 In D2.0	EMTA	Amstel	Amst341	U10C017	4.36.1018	2.22		D1.1, D2.0, PC1.0	
34 PCMM	Policy Server	Camlin	5Cam341	CAMS-3275	2.0.0	Intel SR 1300 Server		PCMM	
34 D2.0	CMTS	BigBand Networks	2Bbp341	Cuda 12000 (C12-	R6.0.0	Rev 4		D1.1, D2.0	
34 P1.0	MG	Nuera	4Nuor341	BTX-4K	1.1.0.4	A		PC1.0	
34 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link341	CMP27B	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link342	CGP27WB	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34 PCMM	Policy Server	Netgear	Ntg341	CVG824G	3.5.BR01	1.00		PCMM	
34 PC1.0 In D2.0	EMTA	Tazzy Networks	5Taz341	Tazz PCS	PCMM 1.2	SUN V60V20z		PCMM	
34 PC1.0 In D2.0	EMTA	Tereyon	Ter341	TJ945	16.0.0.10	31.0		D1.1, D2.0, PC1.0	
34 PCMM	Policy Server	CableMatrix	5Cabl341	ODSP	0.8.6	NA		PCMM	
34 P1.0	CMS	C-Cor	5Ccor341	NA	1.0	NA		PC1.0	
33 PC1.0 In D2.0	EMTA	Scientific Atlanta	Sci332	DPX2213	V05.01.00F004	SUNFIRE V120		D1.1, D2.0, PC1.0	
33 D2.0	CM	Cisco-Linksys	Link331	BEFCMU10 ver. 5	V2.0.21251	1.0		D1.1, D2.0	
33 C1.1	Embedded PS	Amstel	Amst331	U10C019	2.0.3.5.6	2.0		D1.1, D2.0, CH1.1	
33 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link333	CGP27WB	5.66.1000	4.10		D1.1, D2.0, PC1.0	
33 PC1.0 In D2.0	EMTA	Scientific Atlanta	Sci331	DPX2203	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33 PC1.0 In D2.0	EMTA	Cisco-Linksys	Link332	CM272B	V2.0.21151	2.1		D1.1, D2.0, PC1.0	
33 PC1.0 In D2.0	EMTA	Thomson	Thom331	CHG525	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33 PC1.0 In D2.0	EMTA	Thomson	Thom331	CHG525	ST62.05.00	5.0		D1.1, D2.0, PC1.0	

32	D2.0	CM	CMTS+DSG Agent	Motorola	2Moto321	BSR 64000	4.1.0T09P10.KRAU	CHS-0009-01	Cone291	D1.1, D2.0
32	D2.0	CM	CMTS+DSG Agent	Zte	2Moto321	5491	5.35.33.5	100		D1.1, D2.0
32	D2.0	CM	CMTS+DSG Agent	Arise	2Moto321	CA-CMTS-2100-1	CMTS_V04.02.00.10	2.0		D1.1, D2.0
32	D1.1	CM	CMTS+DSG Agent	Bigband Networks	1Rip321	Cuda 12000	R5.5.0	Rev.4		D1.1
32	D2.0	CM	Embedded PS	Terrayon	Tera321	TJ716x	15.0.0.20	58.1		D1.1, D2.0, CH1.1
32	D1.1	CM	DSG eCM	Zyrel	Zyrel322	Prestige 974	V4.70.01	V3.9		D1.0
32	D1.0	CM	Embedded PS	Scientific Atlanta	Zyrel321	8300 DVLPR	2.23.7	1.0		D1.1, D2.0, CH1.1
32	C1.1	CM	Embedded PS	Thomson	Zyrel321	Prestige 971	V4.70.01	V4.1		D1.1, D2.0, CH1.1
32	C1.1	CM	Embedded PS	Clisco-Linksys	Link321	DCW725	ST5A.06.01	4.1		D1.1, D2.0, CH1.1
32	C1.1	CM	Embedded PS	Arise	Link321	CGP2PWB	2.0.3.4.2	2.0		D1.1, D2.0
32	D2.0	CM	CM	Arise	Art321	TMA02G	4.4.1	07		D1.1
32	D1.1	CM	Embedded PS	Telgrade	Tell321	1.0.0	1.0.2	1.0.0		D1.1, D2.0, CH1.1
32	C1.1	CM	CMTS+PC	Netgear	Net321	CGR14WG	3.4.2	1.02		D1.1, D2.0, CH1.1
31	PC1.0 in D1.1	CM	CMTS+PC	Clisco	1Clac311	u8R7246 VXR/MC28U	12.2(15)BCp1	MC28U Rev 6.5		D1.1, D2.0, CH1.1
31	PC1.0 in D2.0	CM	EMTA	Motorola	Moto311	SBV5220	SCM11-NOSH	1		D1.1, D2.0, PC1.0
31	D1.1	CM	CM	Electrolife	Elec311	DHT-PS-NA-01	2.14	02		D1.1
31	D1.1	CM	CM	AM Communications	Arco311	9362	1.68	4.0		D1.1
31	D1.1	CM	CM	Telgrade*	Tell311	1.0.0	1.0.2	1.0.0		D1.1, D2.0
30	D2.0	CM	CMTS	Motorola	2Moto301	BSR 64000	4.1.0T04P08.KRAU	CHS-0009-01		D1.1
30	D1.1	CM	CM	Electrolife	Elec302	DHT-PS-NA-01	2.10	01		D1.1, D2.0, CH1.1
30	C1.1	CM	Embedded PS	Thomson	Thom302	DCW725	14.0.1.4101	4.0		D1.1, D2.0
30	D2.0	CM	CM	Terrayon	Tera301	TJ716x	SRV5220-2.9.1.0-	35.0		D1.1, D2.0
30	D2.0	CM	CM	Motorola	Moto301	SBV5220	SCM08-NOSH	1		D1.1, D2.0
30	PC1.0 in D2.0	CM	EMTA	Clisco-Linksys, LLC	Link301	CM2P2B	2.0.3.2.5	2.0		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	CM	EMTA	Scientific Atlanta	Sda301	DPX2203	V2.0.2.11.43	2.1		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	CM	EMTA	Arise	Arise301	U10C017	4.36.1007	2.22		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	CM	EMTA	Clisco-Linksys, LLC	Link302	CGP2PWB	2.0.3.2.5	2.0		D1.1, D2.0, PC1.0
29	D2.0	CM	CM	Scientific Atlanta	Sda302	W66STAR DPC2100	V2.0.2.12.42	CHS-0009-01		D1.1, D2.0
29	PC1.1 in D1.1	CM	CMTS+PC	Motorola	1Moto291	BSR 64000	3.1.0T09P57.05.KREU	2.0		D1.1, D2.0, PC1.1
29	D2.0	CM	CM	Arise	Arise291	U10C018	2.93.1003	1.20		D1.1, D2.0
29	D2.0	CM	CM	Clisco-Linksys	Link291	BEFCMU10 ver. 4	2.0.3.1.1	2.0		D1.1, D2.0
29	D2.0	CM	CM	Conesant	Cone291	ACM951	5.35.33.5	100		D1.1, D2.0
29	D2.0	CM	CM	Conesant	Cone292	XCM951	5.35.33.5	10		D1.1, D2.0
29	D2.0	CM	CM	Motorola	Moto291	SBV5120	SCM05-NOSH	4		D1.1, D2.0
29	D2.0	CM	CM	Thomson	Thom291	DCM425	ST52.01.02	4.0		D1.1, D2.0
29	D2.0	CM	CM	Scientific Atlanta	Sda291	W66STAR DPC2100	V2.0.2.11.42	1.2		D1.1, D2.0
29	C1.1	PS	CMTS	ADC	1Adco291	CGV2W	2.0.3.1.0	2.0		D1.1, D2.0, CH1.1
29	D1.1	CM	CMTS	Motorola	1Moto292	Cuda 12000	R5.5.0	Rev.4		D1.0, D1.1
29	D1.1	CM	CMTS	AudioCodes	4Aud291	BSR 64000	3.1.0T09P57.05.KREU	CHS-0009-01		D1.1
29	P1.0	MG	MG	General Bandwidth	4Gene291	Mediant 5000	2.0.30.1.6	Rev. B		PC1.0
29	P1.0	MG	MG	General Bandwidth	4Gene291	CG	ml_1001_0_0 BX	1.0		PC1.0
29	PC1.0 in D2.0	CM	EMTA	Motorola	Moto292	SBV5120	SCM16-NOSH	1		D1.1, D2.0, PC1.0
29	C1.1	CM	Embedded PS	Clisco-Linksys	Link292	WCG2000 ver. 2	2.8.3.1.1	2.0		D1.1, D2.0, CH1.1
29	D2.0	CM	CMTS	Arise	Arise291	CA-CMTS-2100-1	CMTS_V04.00.00.104	2.0		D1.1, D2.0
29	C1.0	CM	Embedded PS	Arise	Arise282	60746EU	6.11.1111	4.7		D1.1, CH1.0
29	D2.0	CM	CM	Motorola	Moto286	SBG900	2.1.8.25CM01	3		D1.1, D2.0
29	C1.0	CM	Embedded PS	Motorola	Moto282	SBG940	SCM00-NOSH	1		D1.1, D2.0, CH1.0
29	D2.0	CM	CM	Motorola	Moto281	SBG940	SBG940-2.1.3.1-	1		D1.1, D2.0
29	D2.0	CM	CM	Motorola	Moto287	SBV5101	SCM00-NOSH	1		D1.1, D2.0
29	D2.0	CM	CM	Motorola	Moto283	SBV5120	SCM02-NOSH	1		D1.1, D2.0
29	C1.1	CM	Embedded PS	Clisco-Linksys	Link281	WCG2000	2.0.2.16.0	1.20		D1.1, D2.0, CH1.1
29	D2.0	CM	CM	Shenzhen Coship	Cos281	CCM2000A	12.0.2.13	35.0		D1.1, D2.0
29	D2.0	CM	CM	Arise	Arise281	CME100	2.0.2.0.6	2.1		D1.1, D2.0
29	D2.0	CM	CM	D-Link	Dln281	DCM-202	2.0.1	1A		D2.0
29	D2.0	CM	CM	Dachnet	Dach281	LP3200	10.0.0	29.2		D1.1, D2.0
29	D2.0	CM	CM	Arise	Arise281	710622 (C3)	4.0.1.45	04		D1.1, D2.0
29	D2.0	CM	CM	Castenet	Cast281	DP1110XBZA	2.7.2.280	1.0		D1.1, D2.0
29	D2.0	CM	CM	Arise	Arise281	10018EU	2.93.1000	1.16		D1.1, D2.0
29	D2.0	CM	CM	Nortel Networks	3Nor281	CS 2000 MGC	SN06.PSM	1.02		PC1.0
29	D2.0	CM	CM	Castenet	Cast281	DP1110XBZ	2.5.2.117	1		D1.1, D2.0, CH1.1
29	C1.1	CM	Embedded PS	Netgear	Net281	CGR14WG	2.10.DR01	1.02		D1.1, D2.0
29	D2.0	CM	CM	Conesant	Cone281	ACM951	5.29.30.6.MO0B	100		D1.1, D2.0

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26	D1.1	CM	Motorola	Moto263	SBG1000	SBG1000-1.1.3.5-SCM00-NOSH	1	D1.1
26	D1.1	CM	Linksys	Link261	BEFCMU10 v01.3	1.1.1.0.1	1.0	D1.1
26	D1.1	CM	Castlenet	Cast262	CXC250	5.19.20.2.FORTMESH	010	D1.1
26	D1.1	CM	Linksys	Link263	WCG200	2561	12b	PC1.0
25	P1.0	CM	Syndeo	Synd251	Sydon 426	1.1.3.0.1	9.0	PC1.0
25	D2.0	CM	Terayon	Teraz253	TJ715	2.2.6.8	1.0b	CH1.0
25	C1.0	Embedded PS	Linksys	Link256	WCG200	2.0.1.0.2	1.0b	CH1.0
25	C1.0	Embedded PS	Thomson	Thom254	DCW615DCW615R	2.82R03	1.40	D1.1
25	D1.0	CM	Toshiba	Toash253	PCX4500DAZ8641	1.0.0	17.0.0	D1.1
25	D1.1	CM	Arts	Art252	CM480A	CM480A.02.011703C	01	PC1.0
25	P1.0	CM	Cisco	OCac251	BT510200	R4.0	R4.0	D2.0
25	D2.0	CM	Linksys	Link255	WCG200	2.0.1.0.1	1.0b	D1.1
25	D1.1	CM	Linksys	Link251	BEFCMU10	1.1.5	3.0	D1.1
25	D1.1	CM	Linksys	Link257	WCG200	2.0.1.0.1	10.0	D1.1
25	D1.1	CM	Scientific Atlanta	Sci252	WebSTAR DPX100	1.1.21.1.3.1	2.1	D1.1
25	D1.1	CM	SNC	Sncr253	SNC3013WG	2.0.0	1A	D1.1
25	D1.1	CM	Terayon	Teraz251	TA-102	2215	8.15	D1.1
25	D1.1	CM	Terayon	Teraz252	TJ715	5.26	9.0	D1.1
25	D1.1	CM	Thomson	Thom253	DCW615DCW615R	2.81R01	1.40	D2.0
25	D2.0	CM	Ambl	Ambl251	80878EU	2.57.2007	1.12	D2.0
25	D2.0	CM	Arts	Art253	CM450A	CM450A.02.011703C	01	D2.0
25	D2.0	CM	Castlenet	Cast253	CXC250	5.12.21	010	D2.0
25	D2.0	CM	Thomson	Thom252	DCM315 DCM315R	ST32.06.00	1.2	D2.0
25	D2.0	CM	Hilton	Hilr252	BRG-3520T	2.0.1	1A	D2.0
25	D1.1	CM	Terayon	Teraz255	TJ715X	5.25	7.0	D1.1
25	D2.0	CM	Motorola	Moto253	SB5120	SB5120-2.9.2.9-SCM-	1	D2.0
25	D2.0	CM	Motorola	Moto256	SB5120	03-NOSH	2	D2.0
25	P1.0 in D1.1	CM	Scientific Atlanta	Sci251	WebSTAR DPX2100	03-NOSH	1.1	PC1.0
25	D2.0	CM	Terayon	Teraz251	GA-CMTS-2100-1	2.0.1.1.3.1	1.3	D2.0
25	D2.0	CM	Toshiba	Toash252	TJ715	CMTS_V03.01.06.20	7.0	D2.0
25	D1.1	CM	Netgear	Nigr251	PCX2600DAZ8623	8.20	19.0.0	D1.1
25	D1.1	CM	Motorola	Moto252	CG814MW2	3.0.13	1A	D1.1
25	D1.1	CM	Hilton	Hilr251	SB5120	SB5120-2.9.2.9-SCM-	1	D1.1
25	D1.1	CM	Com21	Com21	BRG-3520T	03-NOSH	1A	D1.1
25	D1.1	CM	Com21	Com21	EC330A	2.0.1	17.0	D1.1
25	D1.1	CM	D-Link	Dln251	DP1110XB2	9.2.9	1	D2.0
25	D1.1	CM	Cisco	1Cisc253	DCM-201	2.5.2.111	4A	D1.1
25	D1.1	CM	Arts	Art251	uBR7246v4	1.1.0	rev B0, MC16S rev 1.0, NPE400; Rev A0, HW	D1.1
25	D1.1	CM	Thomson	Thom251	TTM202P	12.2(1)BC2p	1.03	PC1.0
25	D1.1	CM	Motorola	Moto259	DCM315DCM315R	TM.03.02.020703C	05	PC1.0
25	D1.1	CM	Cisco	1Cisc252	SB3100	ST31.04.00	1.2	D1.0
25	D1.0	CM	Toshiba	Toash251	uBR7114	SCM00-NOSH	1	D1.1
25	D1.1	CM	Motorola	Moto265	PCX2600DAZ8623	12.2(1)BC3c	Rev 1.3	D1.1
25	D1.1	CM	Cisco	1Cisc251	SBV4200	1.0.13	19.0.0	D1.0
25	D1.1	CM	Motorola	Moto265	uBR40012	SBV4200-07.2.04-	1	PC1.0
25	D1.1	CM	Motorola	Moto251	1Cisc251	SCM00-NOSH	1	PC1.0
25	D1.1	CM	Motorola	Moto251	1Moto251	12.2(1)BC2p	Rev 4.0 MC28 Rev A0	PC1.0
25	D1.1	CM	Terayon	Teraz251	2Teraz251	1.3.0T04P21.ARAU	PCA-0100	PC1.0
25	D1.1	CM	Kipro	Kipr251	WV9500	2.0.0.1.21	2.0	PC1.0
25	D1.1	CM	Arts	Art253	CM41001	5.26	7.0	CH1.0
25	D1.0	CM	Arts	Art251	60740ELW	5.11.1001	4.6	CH1.0
25	D1.0	CM	Arts	Art251	CDM41300DAZ8621	1.0.6	9.13	D1.0
25	D1.1	CM	Arts	Art243	TC060A1430	1.0	02	D1.1
25	D1.1	CM	Motorola	Moto242	SB5100	SB5100-1.1.1-SCM01-	1	D1.1
25	D1.1	CM	Kipro	Kipr241	CM41001	NOSH	1	D1.1
25	D1.1	CM	Com21	Com21	DP1110XB2	5.25	7.0	D1.1
25	D1.1	CM	Broadcom	Broad241	8601	2.5.2.110	1	D1.1
25	D1.1	CM	Askey	Aske241	CME100	1.1.5 r1	5.2	D1.1
25	D1.1	CM	Arts	Art241	TM0206102	1.1.1 r1	1.0	D1.1
25	D1.1	CM	Arts	Art241	80194E	3.5.1	04	D1.1
25	D1.0	CM	Toshiba	Toash243	PCX2200A0AZ8618	2.23.1099	1.6	D1.0
25	D1.0	CM	Thomson	Thom242	DCM3050DCM305R	1.7.022	7.6	D1.0
25	D1.0	CM				ST23.1B.41	028	D1.0

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22	D1.1	CMTS	Arts	1Am222	ARC00046	4.2.6	01	D1.1
22	D1.1	CMTS	Juniper	1Junp221	Juniper G10	2.1.0.18	2.0	D1.1
22	D1.1	CMTS	Motorola	1Moto221	BSR 64000	1.2.47 KRC	PCA-0057-02	D1.1
22	D1.1	CMTS	Motorola	1Moto222	BSR 1000	01.01.15 PRR	PCA-0027-030	D1.1
22	D1.1	CM	Com21	CMto222	DP 1110XB	2.3.2.105	03	D1.1
22	D1.1	CMTS	ADC	1Adco222	Coda 12000 (C-12-DM1x45PM-SF)	R3.1.23	CMTS, Rev. 23	D1.1
22	D1.1	CM	Motorola	Moto222	SB4220	SB4220-1.0.3.0-SCM-	1	D1.1
22	D1.1	CM	Toshiba	Tosh224	PCX2200	01-NOSH	1.7.017	D1.0
22	D1.1	CMTS	Scientific Atlanta	1Sclat221	Prisma G10	2.1.0.18	2.0	D1.1
22	D1.1	CM	Com21	CMto221	DP 1110XB	2.3.1.108	3	D1.0
22	D1.1	CM	Corisiant	Cor221	EC270	1.8.10	7.41	D1.1
22	D1.1	CM	Jochong	Jho222	SL-2600	Ver6.1.0	Ver2.1	D1.1
22	D1.1	CM	AsusTek	Asus222	ACM6045EB	1.9	1.4	D1.0
22	D1.1	CM	Linksys	Link222	BEFCMUH41	1.0.0	0.4	D1.0
22	D1.1	CM	Linksys	Link223	BEFCMUH4	2.62	1.10	D1.0
22	D1.1	CM	Motorola	Moto221	SB4220	SB4220-0.8.3.0-SCM-	1	D1.0
22	D1.1	CM	Pioneer	Pion221	BT-M800W	01-NOSH	3.0	D1.0
22	D1.1	CM	Scientific Atlanta	Sclat221	WebStar DPX100	1.0.5.11.1	1.0	D1.0
22	D1.1	CM	3Com	3Com221	3CR2923	02.06	2.00	D1.1
22	D1.1	CM	Scientific Atlanta	Sclat223	WebStar DPX100	1.0.5.11.1	2.2	D1.0
22	D1.1	CM	Thomson	Thom221	DCM30505R	ST22.05.01	028	D1.0
22	D1.1	CM	Thomson	Thom222	DCM30505R	ST23.10.00	028	D1.0
22	D1.1	CM	Toshiba	Tosh221	PCX2500DAZ8821	1.0.6	9.1.1	D1.0
22	D1.1	CM	Scientific Atlanta	Sclat221	WebStar DPX100	1.0.5.11.1	2.1	D1.0
22	D1.1	CM	Sc222	Sc222	8601	1.1.2.11	5.1	D1.1
22	D1.1	CM	Broadvent	Broad221	C4-CMTS-2100-1	W02.00.02.10	1.0	D1.1
22	D1.1	CMTS	Arts	1Art221	CX9421CM	4.12734	24043.15.0	D1.1
21	D1.1	CM	Conexant	Con211	CME075	1.1.2.11	5.1	D1.1
21	D1.1	CM	Askey	Aske211	A27M02NA	2.1.0	0.4	D1.1
21	D1.1	CM	Arts	Art211	CM3503R	2.3.1	3.0	D1.1
21	D1.1	CM	SMC	Adm211	CSMC801CM-B	ST.22.04.00	028	D1.0
21	D1.1	CM	Thomson	Thom212	RCA-DCM305	0.4.4.0p	Rev. 1	D1.0
21	D1.1	CM	Motorola	Moto214	SB4200	0.4.4.0p	Rev. 0	D1.0
21	D1.1	CM	Motorola	Moto213	BEFMCU10 ver.2	1.0.6	4.0	D1.0
21	D1.1	CM	Linksys	Link211	ACM6045EB	1.80	1.00	D1.0
21	D1.1	CM	AsusTek	Asus211	HM300c	71-0001-10	ROA 218 767/1 R1A	D1.0
21	D1.1	CM	AsusTek	Asus211	QCM200	2.4.1	3.2	D1.1
21	D1.1	CM	Quanta Network	Quan211	CDM-120DAZ8820	1.1R.005	3.2.1	D1.0
21	D1.1	CM	Systems	Duan211	CA-CMTS2100	V01.01.00.12	1.0	D1.1
21	D1.1	CMTS	DX Antenna	1Ant212	BEFCMU10	1.0.4 Rel 2	3.0	D1.0
21	D1.1	CM	Linksys	Link212	WebSTAR DPX100	1.1.2.11	2.1	D1.1
21	D1.1	CM	Scientific Atlanta	Sclat211	CVM315A	2.5.0	RevA	D1.1
21	D1.1	CM	Tellabs	Tell211	ECM615	4.34	1.3	D1.1
21	D1.1	CM	Terayon	Ter211	ECM715	5.08	3.0	D1.1
21	D1.1	CM	Terayon	Thom212	DCM245DCM245R	ST.1C.00.00	028	D1.1
21	D1.1	CM	Thomson	Thom211	CM011	0.5096.360	0.4	D1.0
21	D1.1	CM	Corisma	Cres211	CMX300	0.5096.360	0.4	D1.0
21	D1.1	CM	Best Data	Best211	XCM-2300	5.0.2	5.1.2	D1.1
21	D1.1	CM	Xrosstech	Xros211	RS 9600	6.2.1.1	Backplane RevA	D1.1
21	D1.1	CMTS	RiverStone	1Ran211	82800	6.1.2.0.1	300-005-03-0B	D1.1
21	D1.1	CMTS	Terayon	0Ter212	Cuda 12000	R3.1.91	1	D1.1
21	D1.1	CMTS	ADC	1Adco211	UBR10012	12.2(4) 8Cc	Rev 4.0 MC28 RevA0	D1.1
21	D1.1	CMTS	Clisco	1Csc211	WebSTAR DPX213	1.1.2.11	2.0	D1.0
21	D1.1	CM	Scientific Atlanta	Sclat212	Prisma G10	2.0.0	14.00	D1.0
21	D1.1	CM	OSclat201	OSclat201	SCM-1400	2.1.0	Rev. 0	D1.1
21	D1.1	CM	Scientific Atlanta	Sclat211	SB4100	0.4.3.3p	2.0	D1.1
21	D1.1	CM	Samsung	Moto201	WebSTAR DPX100	1.1.1.11	ROA 117 8493/1 R2A	D1.1
20	D1.1	CM	Motorola	Sclat202	HN209C	CXC 112 2239/1/1 R1B	02	D1.1
20	D1.1	CM	Ericsson	Erlc201	A2TM01NA	1.1.0	7.1	D1.0
20	D1.1	CM	Arts	Art201	PCX2200 / DAZ8817	1.7.014	26	D1.0
20	D1.1	CM	Toshiba	Tosh204	RCA DCM245	ST13.05.00	1.0	D1.0
20	D1.1	CM	Thomson	Thom201	WebSTAR DPX100	1.6.5.11	V1A	D1.1
20	D1.1	CM	Scientific Atlanta	Sclat201	CVM410A	V3.20	Rev. 1	D1.0
20	D1.1	CM	Tellabs	Tell201	SB4200	0.4.3.3p	1.6	D1.1
20	D1.1	CM	Motorola	Moto202	60194E	2.25.988		D1.1
20	D1.1	CM	Ambl	Ambl201				D1.1



20	D1.0	CM	Hilton	H1r201	BRG-3520	1.0.1	3A	D1.0
20	D1.0	CM	D-Link	Dln201	DCM-200	4.4382.1	3.2	D1.0
20	D1.0	CM	Cisco	Cisc201	UBR925	Ver 12.2	3.1	D1.0
20	D1.0	CM	Ambit	Amb1202	60237ELUV	5.1.309	4.2	D1.0
20	D1.0	CM	3Com	3Com201	3CR29223	01.22	2.00	D1.1
20	D1.1	CMTS	Cisco	1Cisc201	UBR1200 VXR/MC16S	12.10/CXZ	rev B0 MC16S rev 1.0	D1.0
20	D1.0	CM	Panasonic	Pana201	TC-CM2009	1.7.14	2.1	D1.1
20	D1.1	CM	Toshiba	Tosh201	PCX2500/DAZ8821	2.0.3	9.1.0	D1.1
20	D1.1	CM	Toshiba	Tosh203	PCX3000/DAZ8831	2.2.3	13.0.0	D1.0
20	D1.0	CM	Cisco	OCisc201	UBR10012	12.2(C)XF1	rev 3.0 MC28 Rev A0	D1.0
20	D1.0	CMTS	Toshiba	Tosh201	PCX2500/DAZ8821	1.0.2	8.1.0	D1.0
20	D1.1	CM	Texas Instruments	Texa201	TNETC465T	4.0.9	9.0	D1.1
20	D1.0	CMTS	Pacific Broadband	9Pbo201	Kodiak G10	2.0.0.16	20.0 (M2.0A1.2/D2.0)	D1.0
19	D1.0	CM	Thomson	Thom191	DCM245 / DCM245R	ST12.07.01	28	D1.0
19	D1.0	CM	Samsung	Same191	SCM-120U	1.1.1	12.20	D1.0
18	D1.0	CM	Scientific Atlanta	Scie191	WebSTAR DPX110	1.0.4 Release 2	4.0	D1.0
18	D1.0	CM	Scientific Atlanta	Scie192	WebSTAR DPX110	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Askey	Aske192	CME063	1.0.4 Release 2	4.0	D1.0
19	D1.0	CM	Terayon	Tera192	ECM615	3.52	1.2	D1.0
19	D1.0	CM	Corrent	Corr191	EC280T	1.7.11	7.11	D1.0
19	D1.0	CM	Askey	Aske191	ACM6033	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Ascom	Actn191	SMC6002CM	4.5096	9414.1B.0	D1.0
19	D1.0	CM	Hauptpage Computer	Haupt191	BRG-3510	1.0.9M1.2	A0	D1.0
19	D1.0	CM	LG Inredex	Lgin192	LCM5009	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Acustek	Acus191	ECM610	3.47	1.2	D1.0
19	D1.0	CM	CastNet	Cast191	ACM6050EB	1.60	1.30	D1.0
19	D1.0	CM	Ericsson	Eric191	CXC110	0.5096.350	04	D1.0
19	D1.0	CM	Ericsson	Eric192	HM2000c	CXC 112 2096/1 R5B	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Ericsson	Eric193	HM200c	CXC 112 2096/1 R5B	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Ericsson	Eric193	HM200c	R3G	R2B	D1.0
19	D1.0	CM	High Speed Surfing	Hgh191	SM200	0.5096.350	02	D1.0
19	D1.0	CM	LG Inredex	Lgin191	LCM100	4.5096	03	D1.0
19	D1.0	CM	Mobidea	Mole191	SB4080	4.2.12p	Rev. 1	D1.0
19	D1.0	CM	SMC	Smcn191	SMC 8602 CM	2.6.3	1.6	D1.0
19	D1.0	CM	Mobidea	Mole192	SB4100	4.0.12P	Rev. 0	D1.0
19	D1.0	CM	Tri-Gem Computer	Trig191	Dream Port-1200	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Mobidea	Mole193	SB4101	4.0.12P	Rev. 4	D1.0
19	D1.0	CM	Panasonic	Pana191	T2-CM200	1.7.11	2.1	D1.0
19	D1.1	CMTS	Cadent	Cade191	C4-CMTS-2100	400.80.17	1.0	D1.1
19	D1.0	CM	Ambit	Amb191	60194E	2.2.2	1.8	D1.0
19	D1.1	CMTS	Arits	1Art191	Comersione CMTS			D1.1
19	D1.0	CM	Toshiba	Tosh192	PCX1500/DAZ8816	4.2.0	01	D1.0
19	D1.0	CM	Toshiba	Tosh194	PCX1200/DAZ8815	1.7.011	7.1	D1.0
19	D1.0	CMTS	Mobidea	OMole191	DCM-2100	Release 11x	7.0	D1.0
19	D1.0	CM	Turbocomm	Turb191	EC200T	1.7.11	484447-001 Rev A	D1.0
19	D1.1	CM	Toshiba	Tosh193	PCX2500/DAZ8821	2.0.1	9.0.0	D1.1
19	D1.1	CM	Texas Instruments	Texa191	TNETC405	2.0.1	2.0.0	D1.1
19	D1.0	CM	Zoom	Zoom191	Zoom Cable Modem			D1.0
18	D1.0	CM	Samsung	Same191	SCM-120U	4.100	140	D1.0
18	D1.0	CM	Ericsson	Eric192	HM204c	1.0.0	20	D1.0
18	D1.0	CM	D-Link	Dln181	BEUCM11	CXC112 2096/1 R5A	ROA117 8439/1 R2A	D1.0
18	D1.0	CM	Net & Sys	Net181	MNG2000	0.4381.108	04	D1.0
18	D1.0	CM	Ericsson	Eric183	HM200c	4.4382	3.2	D1.0
18	D1.0	CM	Zoom	Zoom181	USR6200	R3D	R2B	D1.0
18	D1.0	CM	US Robotics	Uro181	DCM452/46R	1.86	02385-014 (MIB.295014)	D1.0
18	D1.0	CM	Thomson	Thom181	PCX 2000/DAZ8820	2.13.2	1.6	D1.0
18	D1.0	CM	3Com	3Com183	3CR29250	ST12.07	26	D1.0
18	D1.0	CM	Toshiba	Tosh182	60194E	1.1R.006	3.3.2	D1.0
18	D1.0	CM	Ambit	Amb181	BRG-3510	2.16.1	1.6	D1.0
18	D1.0	CM	Hilton	H1r181	CXC110-Dual Link	1.1R.005	3.2.1	D1.0
18	D1.0	CM	Cadent	Cade181	3CR29250	2.8.3	1.6	D1.0
18	D1.0	CM	3Com	3Com181	9Pbo201	1.0.9M1.2	A0	D1.0
18	D1.0	CMTS	Pacific Broadband	9Pbo181	KODIAK F10	0.4590.230	04	D1.0
18	D1.0	CM	High Speed Surfing	Hgh181	SM100	2.10.5	M1.1/A1.7/D1.1	D1.0
18	D1.0	CM				1.10.17	04	D1.0
18	D1.0	CM				0.4381.108		D1.0



16	D1.0	Infinit	ICM1150T	VCMM v1.8	ICM1150T Rev D	D1.0
16	D1.0	Hil162	BWG-3511	1.0.9W1.3	A0	D1.0
16	D1.0	Ericsn	HM200c	COA117 843911 R2A	13/10	D1.0
17	D1.0	Samsun	SCM-130U	V2.1.0	MediaLynx CM-2000	D1.0
17	D1.0	Global Telemann	MediaLynx CM-2000	K	Rev 0.5	D1.0
17	D1.0	Samsun	SCM-120R	4.4381	12.00	D1.0
17	D1.0	Scientific Atlanta	Webstar DPX-110	1.0.3R4	Aske171	D1.0
17	D1.0	High Speed Surfing	SM110	0.4381.108	04	D1.0
17	D1.0	Terrayn	ECM210	1.7.8	Correlent	D1.0
17	D1.0	Texas Instrumenta	TNETC400G	217	3.2	D1.0
17	D1.0	Askey	CME063	1.0.3R4	3.0	D1.0
17	D1.0	Nortel Networks	CM115U	1.0.3R4	3.0	D1.0
17	D1.0	Motorola	SB4100 Rev 3	4.0.9p	Rev 3	D1.0
17	D1.0	Motorola	SB4100 Rev 1	4.0.9p	Rev 1	D1.0
17	D1.0	Motorola	SB4100 Rev 0	4.0.9p	Rev 0	D1.0
17	D1.0	Motorola	TZ-CM100	1.1	1.1	D1.0
17	D1.0	Clisco	CVA 122	Cvt120-k1v4y5-mz.TLN	3.1	D1.0
17	D1.0	Dakos	Cablexpert CMZ1100	4.0.43.81	1.0	D1.0
17	D1.0	Castlenet	CXC110-C11	0.4381.108	04	D1.0
17	D1.0	Elsal71	MicroLink Cable	1.0.8	A3	D1.0
17	D1.0	Motorola	SB3100	3.2.12p	Rev 1	D1.0
17	D1.0	Ericsn	HM200c R1A (ZAT 510)	R3D	R1A	D1.0
17	D1.0	Ericsn	HM204c R1A (ZAT 510)	R4A	R1A	D1.0
17	D1.0	Castlenet	CXC110-Cabier	0.4381.108	04	D1.0
17	D1.0	Powercom	PCR-2600U	0.4382	V0.2	D1.0
17	D1.0	Arif	Comerstone CMTS-	1500	00	D1.0
17	D1.0	RiverStone	RS 8000	6.1.2.C.1	Backplane: 300-001-05-0A CMTS module D2	D1.0
17	D1.0	Tellabs	Cablespan 2700	6.1.2.C.1	Backplane: 300-005-05-0A CMTS module: -2	D1.0
17	D1.0	Terrayn	BE 2000/BE-CMTS41	6.1.2.C.1	Backplane: 300-001-05-0A CMTS module: 02	D1.0
17	D1.0	Clisco	UBR 7100	ub7100-k1p-mz.121-	Line card rev 3	D1.0
17	D1.0	3Com	3CR29241	4.4.EC	upconv/rev 7	D1.0
17	D1.0	3Com	3CR29223	01.03	2.0	D1.0
17	D1.0	Accion	SMC 5001	01.15	2.0	D1.0
17	D1.0	Zoeth	5031	2.1.0	2/1	D1.0
17	D1.0	RiverDelta	BSR64000	2.0.42.70	079301	D1.0
17	D1.0	Toshiba	DA28613	60.01.00.BA	CHS-0001-02	D1.0
17	D1.0	Nortel Networks	CM220	17.007	6.62	D1.0
17	D1.0	Clisco	UBR7200/CM23C	V2.4 patch 1	V1.4	D1.0
17	D1.0	Elsal71	204	12.1(3a)EC	A0	D1.0
17	D1.0	D-Link	DCM100	1.30	G	D1.0
17	D1.0	Arbit	60218P	4.4270	3.2	D1.0
17	D1.0	Arbit	60194E	V2.2 patch9	V0.1	D1.0
17	D1.0	Arif	CM200R	2.2.7	1.4	D1.0
17	D1.0	Terrayn	ECM110	ST1.08	25	D1.0
17	D1.0	Future Networks	FN110C	1.7.6	6.12	D1.0
17	D1.0	Nel & Sys	MKG-1000	V2.15	V1.C	D1.0
17	D1.0	3Com	3CR29223	2.20d	1.03	D1.0
17	D1.0	Askey	RT080	V1.10	V2.00	D1.0
17	D1.0	Clisco	UBR905	1.10.0	V8.0	D1.0
17	D1.0	Clisco	C1001	ub925-k1v203s4y5-	A0	D1.0
17	D1.0	Clisco	ORsm151	mz	01	D1.0
17	D1.0	Toshiba	PCX1100/DAZB813	1.0.3857	Classik: rev 8; CMTS: Rev 02	D1.0
17	D1.0	Lucint (Delta Kabel)	Demos 38-033	6.1.0.1	6.62	D1.0
17	D1.0	Toshiba	PCX1100/DAZB811	V2.91.0	V8.0	D1.0
17	D1.0	RiverDelta	BSR 1000	V2.006	6.12	D1.0
17	D1.0			2.1.3	BSR 1000	D1.0

15	D1.0	CMTS	Terayon	0Tera151	Teraylink 2000 TLL-	6.1	Rev. 2	Chassis: revB; CMTS:	D1.0
15	D1.0	CM	Terayon	Tera152	CMTS41A	1.7.6	8.62		D1.0
15	D1.0	CM	Seel151	Seel151	ECM210	V1.13			D1.0
15	D1.0	CM	Alasky	Alask151	SC-5100E	V1.0	V1.0		D1.0
15	D1.0	CM	Terayon	Tera153	77TCM2	0036-55	D		D1.0
15	D1.0	CM	Motorola	Motor152	TCM310	Rev V3.2.9	Rev C		D1.0
15	D1.0	CMTS	Clasco	Motor152	SB3100 Rev C	12.1/CEC1	A0		D1.0
15	D1.0	CM	Thomson	Thom151	UBR 7200 VXR	ST 1.0A	25		D1.0
15	D1.0	CM	Com21	Com151	DCM235/239R	2.1.0.100	6		D1.0
15	D1.0	CM	CIS	Cis151	DP1110	v2.14	E		D1.0
15	D1.0	CM	ElsaAG	Elsa151	W5-CM30EDTE	1.18			D1.0
15	D1.0	CMTS	Motorola	Motor151	DCM 2000 475390-001-	Rev 1.0	475395-001-00 Rev 01		D1.0
14	D1.0	CM	GVC	Gvcc141	CM4-004/CON	Rev 1.44.32.52	Rev 31	PowerCom	D1.0
14	D1.0	CM	D-Link	Dzn141	DCM100	0.44.32.52	Rev 2.3	Tosh131	D1.0
14	D1.0	CM	DX Antenna		DAZ8411	1.7.003	6.11		D1.0
14	D1.0	CMTS	Motorola	Motor142	MMLN 4004D	5.2	Rev C		D1.0
14	D1.0	CM	Ericsson	Erc142	HM200c	Rev R1E	Rev R2B	TurboNet Communications	D1.0
14	D1.0	CM	Com21	Com141	DP121	1.6.19	6.6		D1.0
14	D1.0	CM	Ericsson	Erc141	HM200c	Rev R1D	Rev R2B		D1.0
14	D1.0	CMTS	Alasky	Alask142	CMTS-1000	3.2.1	Rev 08		D1.0
14	D1.0	CMTS	Clasco	Clc141	UBR 7200 VXR	12.0(1)ISC	A0		D1.0
14	D1.0	CM	Asustek	Asus141	ACME000EB	2.3	1.3		D1.0
14	D1.0	CM	Zoom	Zoom142	5011	0.44.32.52	0293-01C		D1.0
14	D1.0	CM	Amblit	Ambl141	60098E	2.0.13	1.3		D1.0
14	D1.0	CM	Terayon	Tera141	ECM210	Rev 1.6.19	Rev 6.6	TurboNet	D1.0
14	D1.0	CM	Amblit	Ambl142	60098U	2.0.5	V25	RCA	D1.0
14	D1.0	CM	Aris	Aris141	CM200U	ST 5.14	V25		D1.0
14	D1.0	CM	Thomson	Thom141	DCM 225	Ver 3.14	Ver 25		D1.0
14	D1.0	CM	Samsung	Sams141	SCM-110R Ether	Rev 2.0.2	Rev 11.1.10		D1.0
14	D1.0	CM	Zoom	Zoom141	5001	1.44.32.52	0295-01		D1.0
14	D1.0	CM	Motorola	Motor143	SB3100 Rev C	Rev 3.2.6	Rev C		D1.0
14	D1.0	CM	Powercom	Power141	PCR-2600	0.44.32.51	Rev 2.3		D1.0
14	D1.0	CM	Motorola	Motor141	SB3100 Rev D	Rev V3.2.6	Rev D		D1.0
13	D1.0	CM	GVC	Gvcc131	CMX-50	3.1.0	8		D1.0
13	D1.0	CM	Alask1	Alask131	UM141	1.7.3	6.10		D1.0
13	D1.0	CM	Toshba	Tosh131	DAZ8811	1.7.003	6.11		D1.0
13	D1.0	CMTS	3Com	Q3Com135	BR-003676-10	4.4.18	Rev B		D1.0
13	D1.0	CM	Jochong	Joch131	Superlink 2000	1.7.3	6.1		D1.0
13	D1.0	CM	Shohwa	Shoh131	NSC200	1.7.3	6.10		D1.0
13	D1.0	CMTS	BAS	Q3Bas131	Cuda	0.1.59	D		D1.0
13	D1.0	CM	Cisco	Cisc131	UBR924	UBR92541V5-	A0		D1.0
13	D1.0	CM	Toshba	Tosh132	DAZ8813	PL1208TLN	6.5		D1.0
13	D1.0	CM	3Com	3Com133	3CR25220	1.6.4	2.90		D1.0
13	D1.0	CM	Alasky	Alask131	CMEO33	V2.91.0	V8.0		D1.0
13	D1.0	CM	Motorola	Motor133	SB3100 Rev C	V3.2.1	Rev C		D1.0
13	D1.0	CM	NetGame	Net131	Phazer	2.80	6.0	Aske121	D1.0
13	D1.0	CM	3Com	3Com131	3CR28210	3.1.0	6.2		D1.0
13	D1.0	CM	Nortel Networks	Nort131	CM115	V2.91.0	V8.0		D1.0
13	D1.0	CM	Zyxel	Zyxe131	941	2.4	Zygate v1.50		D1.0
13	D1.0	CM	Future Networks	Futu131	100L	VZ.13	V2.2		D1.0
13	D1.0	CM	Future Networks	Futu132	80-000971-01	V2.13	Rev 1.0		D1.0
13	D1.0	CM	3Com	Q3Com134	80-000971-01	3.61.48-1	Rev 1.0	Aske121	D1.0
13	D1.0	CM	NetGear	NetG131	CM201	2.80	6.0		D1.0
13	D1.0	CM	Best Data	Best131	CMX110	1.7.3	V24		D1.0
12	D1.0	CM	Arts	Art122	CM200	ST 4.06	V25		D1.0
12	D1.0	CM	Askey	Aske121	CMEO30	V2.80	V6.0		D1.0
12	D1.0	CM	Arts	Art121	CM200U	ST 5.05	V25		D1.0
12	D1.0	CM	3Com	3Com121	2940	2.03	L3		D1.0
12	D1.0	CM	Thomson	Thom123	OCM 225	ST5.05	V25		D1.0
12	D1.0	CM	High Speed Surfing	High121	SM100	1.6.16	6.1		D1.0
12	D1.0	CM	Thomson	Thom122	DCM 215	ST4.0b	V24		D1.0
12	D1.0	CM	Thomson	Thom121	DCM 215	ST5.05	V24		D1.0
12	D1.0	CM	Turbocomh	Turb121	ECM109	1.6.16	6.1		D1.0
12	D1.0	CM	Terayon	Tera121		1.6.16	6.1		D1.0

12	D1.0	CM	Tera122	ECM110	1.6.16	5.4	D1.0
12	D1.0	CM	Moto122	MLN3150A	2.0.051	74362G01	D1.0
12	D1.0	CM	Moto121	MLN6200A	1.0C108	76087G01	D1.0
12	D1.0	CM	Tosh122	DAZ8811	1.7.002	6.1	D1.0
12	D1.0	CM	Dessault	WD020	V2.80	V6.0	D1.0
12	D1.0	CM	Com21	DP111	1.6.16	6.1	D1.0
12	D1.0	CM	Tosh121	DAZ8811	1.6.016	6.1	D1.0
11	D1.0	CM	Com114	DP101	1.6.14	5.4	D1.0
11	D1.0	CM	Com21	CP3001	1.0.5.100	6500106 rev55	D1.0
11	D1.0	CM	Thom111	UBR7200	ST 1.10	ver 16	D1.0
11	D1.0	CM	Clac111	CP3001	11.3(119)NA1	A0	D1.0
11	D1.0	CM	Com113	DAZ881D	1.0.300	6500106 rev55	D1.0
11	D1.0	CM	Dash111	SB3100B	1.6.003	5.21	D1.0
11	D1.0	CM	Gen112	CMX100	V3.0.7	-001RevB	D1.0
11	D1.0	CM	Best111	SB3100A	1.6.14	5.4	D1.0
11	D1.0	CM	Gen111	CP3001	V3.0.7	-002RevA	D1.0
11	D1.0	CM	Com111	DCM 105	1.0.1.100	8500087 rev54	D1.0
11	D1.0	CM	Tera101	ECM100	ST 20.5.3	HW Ver 12	D1.0
10	D1.0	CM	Gar1091	PCX1000DAZ8801F	2.0.0	03	D1.0
10	D1.0	CM	Tosh092	PD100	1.6.9	Ver 5.21	D1.0
9	D1.0	CM	Pho091	CMR-1000	1.76	1.1	D1.0
9	D1.0	CM	Sony091	CMR-1000	1.1 (0.76.1)	1.1	D1.0
9	D1.0	CM	Ask091	CMR-10	1.76	1.1	D1.0
9	D1.0	CM	Moto091	MLN4004D	5.010p13b	MRX 74267G01, Rev C	D1.0
9	D1.0	CM	Clac091	UBR934	11.3(9)NA ver200-4-ty4	WAC 74029G01, Rev A	D1.0
9	D1.0	CM	Sams091	SCM-100R	1.1.76	Endline, MVME2306-	D1.0
8	D1.0	CM	3Com091	3CR262-DE56	12.30	900NTX-HI, 74612G01,	D1.0
8	D1.0	CM	Arns	DE390ME25	1.100.3	Rev16=RevA MTX-LO,	D1.0
8	D1.0	CM	Gen091	SB2100	V4.1.1	74608G01, Rev 02	D1.0
7	D1.0	CM	Tosh071	DAZ8801E	1.51k	MRX 74267G01, Rev C	D1.0
7	D1.0	CM	Clac071	UBR7200	11.3(7)NA		D1.0
7	D1.0	CM	Thom071	DCM 105	STR.4	Phil 3 e Rev6	D1.0, CH1.0

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1	<p>Data communications apparatus comprising:</p>	<p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>Comcast operates a cable network (the Accused System) that complies with the DOCSIS 1.0, 1.1 and/or 2.0 specifications for providing high speed internet access (<i>i.e.</i>, communicating data) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>; <i>see also</i> DOCSIS 1.0, 1.1, and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial.<sup>1</sup> The aforementioned features perform substantially the same function (communicating data), in substantially the same way (transmitting and receiving digital signals), to achieve substantially the same result (enable the exchange of data), as the recited limitation.</p>
	<p>a time division multiplexed bus having a bandwidth,</p>	<p>Data in the Comcast network is transmitted over a cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may</p>

<sup>1</sup> Any use within these charts of the words "limitation" or "portion" of a claim are for convenience, and do not constitute any admission that such language within the claim forms the boundaries of a claim element for purposes of the doctrine of equivalents. Moreover, no statement in these contentions should be construed as an admission that any language of the preamble is limiting. Rembrandt takes no position at this time regarding whether any language of any preamble is limiting.

	<p>be present, as well as other signals.”); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing time shared access for multiple communication devices on a single frequency channel), in substantially the same way (dividing usage of a channel through a time sharing arrangement), to achieve substantially the same result (enabling a plurality of devices to communicate over the channel via a time sharing arrangement).</p>
where a portion of the bandwidth is allotted to packet data;	<p>In the Accused Instrumentalities, a scheduling algorithm in the CMTS allots some of the time slots in each upstream channel for the transmission of packet or variable bit-rate data. (<i>See, e.g.</i>, DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that . . . define[s] transmission opportunities on the upstream channel. It includes a . . . variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”).)</p> <p>The allocation MAP can include Request IEs which are time periods in which packet data may be transmitted. (<i>See, e.g.</i>, DOCSIS 1.0 at § 6.4.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission.”).) The allocation MAP can also include Request/Data IEs which are additional time periods in which packet data may be transmitted. (<i>See, e.g.</i>, DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities</p>

	<p>meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (designating a part of the time shared communication channel to be used for variable bit-rate data), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used for variable bit-rate data), to achieve substantially the same result (enabling a time shared communication channel to be partially used for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
a plurality of packet data sources	<p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used."));</p> <p>Certain time slots in the databus between the CMs and the CMTS are designated as Request or Request/Data IEs. The CMs can transmit packet or variable bit rate ("VBR") data in such time-slots, and can contend with other CMs to transmit packet or VBR data in such time slots. Each CM can act as and acts as a packet data source, for example to transmit variable bit-rate data during time-slots that have been allotted to a given CM or to all CMs as Request or Request/Data IEs. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.")); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend</p>



	<p>for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing variable bit-rate data from multiple sources), in substantially the same way (sharing a data channel between multiple sources of data), to achieve substantially the same result (providing variable bit-rate data from multiple sources on a single channel).</p> <p>This claim element relates to software features of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (<i>See, e.g.,</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).”)).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the packet data sources and the time shared communication channel), to achieve substantially the same result (enabling the packet data sources to communicate via the time shared communication channel).</p>
that share the allotted bandwidth for	<p>Each CM that transmits VBR data during the Request or Request/Data IE shares that portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data. (<i>See, e.g.,</i> DOCSIS</p>



transmitting packet  
data; and

1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.”); *see also* DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted from the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); *see also* DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); *see also* DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)

In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (apportioning that part of the time-shared communication channel designated for variable bit-rate data among the plurality of packet data sources), in substantially the same way (establishing a procedure by which packet data sources may use the part of the time-shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enabling each of the packet data sources to use a portion of the time-shared communication channel designated for the transmission of variable bit-rate data).

This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).

<p>a distributed packet manager within each of said packet data sources configured to allocate access to the allotted bandwidth among said packet data sources.</p>	<p>Each CM includes software that allocates each CMs access to the TDMA bandwidth that has been allotted to all of the CMs in a broadcast Request or Request/Data IE. This software runs an exponential back-off based contention resolution algorithm. (See, e.g., DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4 and DOCSIS 2.0 at § 9.4 ("The CMTS controls assignments on the upstream channel through the MAP and determines which mini-slots are subject to collisions. The CMTS MAY allow collisions on either Requests or Data PDUs."); see also DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4.1 and DOCSIS 2.0 at § 9.4.1 ("The mandatory method of contention resolution which MUST be supported is based on a truncated binary exponential back-off, with the initial back-off window and the maximum back-off window controlled by the CMTS. ... The CM MUST randomly select a number within its back-off window. This random value indicates the number of contention transmit opportunities which the CM MUST defer before transmitting. A CM MUST only consider contention transmit opportunities for which this transmission would have been eligible. These are defined by either Request IEs or Request/Data IEs in the MAP. .... After a contention transmission, the CM waits for a Data Grant (Data Grant Pending) or Data Acknowledge in a subsequent MAP. Once either is received, the contention resolution is complete. The CM determines that the contention transmission was lost when it finds a MAP without a Data Grant (Data Grant Pending) or Data Acknowledge for it and with an Ack time more recent than the time of transmission. The CM MUST now increase its back-off window . . . MUST randomly select a number within its new back-off window and repeat the deferring process described above.'"))</p>
<p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (allocating access to the part of the time-shared communication channel designated for variable bit-rate data between the variable bit rate data sources), in substantially the same way (through a collision avoidance mechanism which resides within each variable bit rate data source for reducing data collisions), to achieve substantially the same result (apportioning access to the time-shared communication channel designated for the transmission of variable bit-rate data between the plurality of variable bit rate data sources).</p>	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and</p>

	Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).
7	<p>Communications apparatus comprising:</p> <p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>Comcast operates a cable network (the Accused System) that complies with the DOCSIS 1.0, 1.1 and/or 2.0 specification for providing high speed internet access (<i>i.e.</i>, communicating data) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>); <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network."))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating data), in substantially the same way (transmitting and/or receiving digital signals), to achieve substantially the same result (enabling the exchange of data), as the recited limitation.</p>
	<p>a time-division multiplexed bus</p> <p>Data in the Comcast network is transmitted over a fiber or coax cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a sub-split (5-30 MHz) or extended sub-split (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals."); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval."))</p>

	<p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing time shared access for multiple communication devices in a single frequency channel), in substantially the same way (dividing usage of a channel through a time sharing arrangement), to achieve substantially the same result (enabling a plurality of devices to communicate over the channel via a time sharing arrangement).</p>
having a predefined bandwidth;	<p>Each upstream channel can carry a maximum amount of data, depending on the type of modulation used, in a limited frequency band. (See, e.g., DOCSIS 1.0 and 1.1 at § 2.2.1, and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-40 or 5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.")). Moreover, for each upstream channel, the plurality of time slots the channel is divided into are counted on a fixed 32-bit counter. (See, e.g., DOCSIS 1.0 at § 6.5.4, DOCSIS 1.1 at § 7.3.4, and DOCSIS 2.0 at § 9.3.4.1.2 ("The MAP counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. . . . [M]ini-slot N begins at timestamp reference <math>(N * T * 64)</math>, where <math>T = 2M</math> is the UCD multiplier that defines the mini-slot (i.e., the number of time ticks per minislot)."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing a predetermined communications capability), in substantially the same way (by providing a time division multiplexed communication channel with a known capacity), to achieve substantially the same result (providing a specific communications capacity via a time division multiplexed communications channel).</p>
a plurality of	<p>In the Accused Instrumentalities a plurality of CMs communicate with a single CMTS. (See, e.g.,</p>



synchronous data  
sources

DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs ...");

Certain time slots in the databus between the CMs and the CMTS are designated for Unsolicited Grant Service. The CMs may transmit synchronous or isochronous, i.e., generally constant bit-rate ("CBR") data rather than variable bit-rate data, in time-slots that are designated for Unsolicited Grant Service. Each CM can and does act as a synchronous data source because it is capable of transmitting constant bit-rate (CBR) data, such as Voice-over-IP (VoIP) data, during time-slots that are designated for Unsolicited Grant Service. (See, e.g., DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 ("Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are likely to exist as well."); see also DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 ("The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice-over-IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow's real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission.").)

In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are

	<p>insubstantial. The aforementioned features perform substantially the same function (providing CBR data from multiple sources), in substantially the same way (sharing a single TDMA multiplexed data channel between multiple sources of data), to achieve substantially the same result (providing CBR data from multiple sources over a single TDMA multiplexed data channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS)."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (by providing a communication link between each of the synchronous data sources and the time shared communication channel), to achieve substantially the same result (enabling the plurality of synchronous data sources to communicate via the time shared communication channel).</p>
for communicating synchronous data in a first portion of the predefined bandwidth;	<p>Each CM that transmits CBR data does so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for synchronous data. This portion of the bandwidth may be designated as a "first portion" of the bandwidth. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs ...")); <i>see also</i> DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."));</p>

see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5, and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station."); see also DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 ("Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are likely to exist as well."); see also DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 ("The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice over IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow's real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission."))

In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting CBR data in a portion of the time shared communication channel designated for use by the synchronous data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used by the synchronous data sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used for CBR data).

	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
a plurality of packet data sources	<p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used."))</p> <p>Certain time slots in the databus between the CMs and the CMTS are designated as Request or Request/Data IEs. The CMs can transmit packet or variable bit rate ("VBR") data in such time-slots, and can contend with other CMs to transmit packet or VBR data in such time slots. Each CM can act as and acts as a packet data source, for example to transmit variable bit-rate data during time-slots that have been allotted to a given CM or to all CMs as Request or Request/Data IEs. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are</p>



# EXHIBIT A PART 3

	<p>insubstantial. The aforementioned features perform substantially the same function (providing - variable bit-rate data from multiple sources), in substantially the same way (sharing a data channel between multiple sources of data), to achieve substantially the same result (providing variable bit-rate data from multiple sources on a single channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (<i>See, e.g.,</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).").</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the packet data sources and the time shared communication channel), to achieve substantially the same result (enabling the multiple packet data sources to communicate via the time shared communication channel).</p>
for communicating packet data in a second portion of the predefined bandwidth,	<p>Each CM that transmits variable bit-rate data does so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data, for example in the form of Request or Request/Data IEs that are broadcast to all CMs. This portion of the bandwidth may be designated as a "second portion" of the predefined bandwidth. (<i>See, e.g.,</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.")); <i>see also</i> DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation</p>

	<p>MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting variable bit-rate data in a part of the time shared communication channel for use by the variable bit-rate data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods, other than those designated for the synchronous data originators, to be used by the variable bit-rate data sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data; and	<p>Each CM that transmits VBR data during a broadcast Request or Request/Data IE shares that portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data with the other CMs on the network. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs</p>

	<p>may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2, and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (apportioning the part of the time shared communication channel designated for variable bit-rate data among the packet data sources), in substantially the same way (establishing a procedure to determine which packet data sources may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enabling all the packet data sources to use the part of the time shared communication channel for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
a distributed packet manager within each of said packet data sources configured to allocate access to the	<p>Each CM includes software that allocates each CMs access to the TDMA bandwidth that has been allotted to all of the CMs during a Request or Request/Data IE that has been broadcast to all the CMs. This software runs an exponential back-off based contention resolution algorithm. (<i>See, e.g.,</i> DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4 and DOCSIS 2.0 at § 9.4 (“The CMTS controls assignments on the upstream channel through the MAP and determines which mini-slots are subject</p>

second portion of the predefined bandwidth among said packet data sources.	<p>to collisions. The CMTS MAY allow collisions on either Requests or Data PDUs.”); <i>see also</i> DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4.1 and DOCSIS 2.0 at § 9.4.1 (“The mandatory method of contention resolution which MUST be supported is based on a truncated binary exponential back-off, with the initial back-off window and the maximum back-off window controlled by the CMTS. . . . The CM MUST randomly select a number within its back-off window. This random value indicates the number of contention transmit opportunities which the CM MUST defer before transmitting. A CM MUST only consider contention transmit opportunities for which this transmission would have been eligible. These are defined by either Request IEs or Request/Data IEs in the MAP. . . . After a contention transmission, the CM waits for a Data Grant (Data Grant Pending) or Data Acknowledge in a subsequent MAP. Once either is received, the contention resolution is complete. The CM determines that the contention transmission was lost when it finds a MAP without a Data Grant (Data Grant Pending) or Data Acknowledge for it and with an Ack time more recent than the time of transmission. The CM MUST now increase its back-off window . . . MUST randomly select a number within its new back-off window and repeat the deferring process described above.”))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (allocating access to the part of the time shared communication channel designated for variable bit-rate data between the packet data sources), in substantially the same way (through a collision avoidance mechanism which resides within each packet data source to reduce packet collisions), to achieve substantially the same result (apportioning access to the part of the time shared communication channel designated for variable bit-rate data between the packet data sources).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
8. The apparatus of claim 7 further including a	Each Accused CMTS acts as a network access manager in that it is coupled to both the TDMA multiplexed cable databus and to a wide area network, and is configured to communicate both the



<p>network access manager coupled to the time-division-multiplexed bus for communicating the synchronous data and the packet data to at least one network facility.</p>	<p>synchronous and packet data transmitted on the databus to the wide area network. (See, e.g., DOCSIS 1.0, 1.1 and 2.0 at Figure 1-1 (showing the CMTS coupled at one end to the cable network and at the other end to a wide area network); see also DOCSIS 1.0, 1.1 and 2.0 at Figure 1-2 (showing the CMTS coupled at one end to the cable network and at the other end to both the public switched telephone network ("PSTN") and to a wide area backbone network ("WAN")); see also DOCSIS 1.0, 1.1 and 2.0 at § 1.3.1 ("The transmission path over the cable system is realized at the headend by a Cable Modem Termination System (CMTS), and at each customer location by a Cable Modem (CM). At the headend (or hub), the interface to the data-over-cable system is called the Cable Modem Termination System - Network-Side Interface (CMTS-NSI) and is specified in [DOCSIS3]. At the customer locations, the interface is called the cable-modem-to-customer premises-equipment interface (CMCI) and is specified in [DOCSIS4]. The intent is for operators to transparently transfer IP traffic between these interfaces, including but not limited to datagrams, DHCP, ICMP, and IP Group addressing (broadcast and multicast)."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating CBR and variable bit-rate data from the time shared communication channel to a communication network), in substantially the same way (coupling the time shared communication channel to the communication network), to achieve substantially the same result (enabling CBR and variable bit-rate data sources to provide CBR and variable bit-rate data to a communication network).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>9 Communications apparatus comprising:</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>Comcast operates a cable network (<i>i.e.</i>, the Accused System) that complies with the DOCSIS</p>

	<p>specification for providing high speed internet access (<i>i.e.</i>, communicating data) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>); <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.1 (“This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.”) and § 1.3.1 (“The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network.”))</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating data), in substantially the same way (transmitting and/or receiving digital signals), to achieve substantially the same result (enabling the exchange of data).</p>
a time-division multiplexed bus	<p>Data in the Comcast network is transmitted over a fiber or coax cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 (“In the upstream direction, the cable system may have a sub-split (5-30 MHz) or extended sub-split (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.”); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing time shared access for multiple communication devices in a single frequency band), in substantially the same way (dividing usage of a channel through a time sharing arrangement), to achieve substantially</p>

	the same result (enabling a plurality of devices to communicate over the channel via a time sharing arrangement).
having a predefined bandwidth;	<p>Each upstream channel can carry a maximum amount of data, depending on the type of modulation used, in a limited frequency band. (See, e.g., DOCSIS 1.0 and 1.1 at § 2.2.1, and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-40 or 5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.")). Moreover, for each upstream channel, the plurality of time slots the channel is divided into are counted on a fixed 32-bit counter. (See, e.g., DOCSIS 1.0 at § 6.5.4, DOCSIS 1.1 at § 7.3.4, and DOCSIS 2.0 at § 9.3.4.1.2 ("The MAP counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. . . . [M]ini-slot N begins at timestamp reference <math>(N * T * 64)</math>, where <math>T = 2M</math> is the UCD multiplier that defines the mini-slot (i.e., the number of timeticks per minislot)."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing a predetermined communications capability), in substantially the same way (by providing a time shared communication channel with a known capacity), to achieve substantially the same result (providing a specific communications capacity via a time shared communication channel).</p>
a plurality of synchronous data sources	<p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs . . .").</p> <p>Certain time slots in the databus between the CMs and the CMTS are designated for Unsolicited Grant Service. The CMs may transmit CBR data in time-slots that are designated for Unsolicited Grant Service. Each CM can and does act as a synchronous data source because it is capable of</p>

	<p>transmitting CBR data, such as Voice-over-IP (VoIP) data, during time-slots that are designated for Unsolicited Grant Service. (See, e.g., DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 (“Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are likely to exist as well.”); see also DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 (“The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice over IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow’s real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission.”).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing CBR data from multiple sources), in substantially the same way (sharing a single TDMA multiplexed data channel between multiple sources of data), to achieve substantially the same result (providing CBR data from multiple sources over a single TDMA multiplexed data channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-	Each CM is coupled to the TDMA bus or upstream channel. (See, e.g., DOCSIS 1.0 and 1.1 at §



	division multiplexed bus	<p>3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing a access to the time shared communication channel), in substantially the same way (by providing a communication link between each of the synchronous data sources and the time shared communication channel), to achieve substantially the same result (enabling the plurality of synchronous data sources to communicate via the time shared communication channel).</p>
	for communicating synchronous data in a first portion of the predefined bandwidth; and	<p>Each CM that transmits CBR data does so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for synchronous data. This portion of the bandwidth may be designated as a “first portion” of the bandwidth. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs ...”); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5, and DOCSIS 2.0 at § 9.1.2.5 (“The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.”); see also DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 (“Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are</p>

	<p>likely to exist as well.”) <i>see also</i>, DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 (“The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice over IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow’s real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission.”.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting CBR data in a portion of the time shared communication channel designated for use by the synchronous data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used by the synchronous data sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used for synchronous data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
a plurality of packet data sources	<p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs . . .”))</p>

Certain time slots in the databus between the CMs and the CMTS are designated as unicast Request or Request/Data IEs or as Short or Long Data Grant IEs. The CMs can transmit packet or variable bit rate ("VBR") data in time-slots that are so designated. Each CM can and does act as a packet data source because it is capable of transmitting and does transmit variable bit-rate data, for example during time-slots allotted for unicast Request or Request/Data IEs or Short or Long Data Grant IEs. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If unicast, this is an invitation for a particular CM to request bandwidth."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.").)

In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing variable bit-rate data from multiple sources), in substantially the same way (sharing a data channel between multiple sources of data), to achieve substantially the same result (providing variable bit-rate data from multiple sources on a single channel).

This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).

	coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the packet data sources and the time shared communication channel), to achieve substantially the same result (enabling the multiple packet data sources to communicate via the time shared communication channel).</p>
	for communicating packet data in a second portion of the predefined bandwidth,	<p>Each CM that transmits variable bit-rate data can do so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data, for example in the form of time slots designated as unicast Request or Request IEs or as Short or Long Data Grant IEs. This portion of the predefined bandwidth may be designated as a “second portion” of the predefined bandwidth. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs . . .”); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If unicast, this is an invitation for a particular CM to request bandwidth.”); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 (“The Short</p>



	<p>and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.”.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting variable bit-rate data in a part of the time shared communication channel for use by the variable bit-rate data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods, other than those designated for the synchronous data originators, to be used by the variable bit-rate data sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data,	<p>Each CM that transmits variable bit-rate data during time slots designated as unicast Request or Request/Data IEs or as Short or Long Data Grant IEs shares the portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If unicast, this is an invitation for a particular CM to request bandwidth.”); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at §</p>

	<p>7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 (“The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (apportioning the part of the time shared communication channel designated for variable bit-rate data among the packet data sources), in substantially the same way (establishing a procedure to determine which packet data sources may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enabling each of the packet data sources to use the part of the time shared communication channel for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
the second portion of the predefined bandwidth being shared in such a way that only one of the plurality of packet data sources accesses the second portion of the predefined bandwidth at a time.	<p>Each CM that transmits variable bit-rate data during time slots that are designated as a unicast Request or Request/Data IE, or as a Short or Long Data Grant IE, is the only CM that can access that the portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3 and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs . . . .”))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are</p>

	<p>insubstantial. The aforementioned features perform substantially the same function (apportioning the part of the time shared communication channel designated for variable bit-rate data among the packet data sources so that only one source accesses that part of the time shared communication channel at a given time), in substantially the same way (establishing a procedure to determine which packet data source may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (prevent more than one packet data source from accessing the part of the time shared communication channel designated for variable bit-rate data at the same time).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
10	<p>The apparatus of claim 7 wherein each one of the plurality of packet data sources includes interface circuitry to the time-division multiplexed bus for synchronizing packet data to the time-division multiplexed bus.</p> <p>Each CM includes interface circuitry (including, e.g., logic and/or time-slot counters) for synchronizing its transmission of packet data on the upstream channel. This interface circuitry may control, for example, the timing of data transmissions from the CM to the upstream channel. (See, e.g., DOCSIS 1.0 at § 6.5, DOCSIS 1.1 at § 7.3, DOCSIS 2.0 at § 9.3 ("[T]he cable modem MUST be able to time its transmissions precisely to arrive at the CMTS at the start of the assigned mini-slot. To accomplish this, two pieces of information are needed by each cable modem: a global timing reference sent downstream from the CMTS to all cable modems; [and] a timing offset, calculated during a ranging process, for each cable modem."); see also DOCSIS 1.0 and 1.1 at § 4.2.7, DOCSIS 2.0 at § 6.2.19.1 ("Ranging Offset is the delay correction applied by the CM to the CMTS Upstream Frame Time derived at the CM. It is an advancement equal to roughly the round-trip delay of the CM from the CMTS, and is needed to synchronize upstream transmissions in the TDMA scheme. . . . The CM MUST implement the correction with resolution of at most 1 symbol duration.")).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (matching the transmission of variable bit-rate data to the time periods of the time shared communication channel to which the variable bit-rate data is assigned), in substantially the same way (providing a procedure</p>

	<p>through which the time periods of the time shared communication channel are tracked), to achieve substantially the same result (ensuring that variable bit-rate data is transmitted during the correct time periods of the time shared communication channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
11	<p>Communications apparatus comprising:</p> <p>Rembrandt does not express a position at this time as to whether the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to the claim preamble.</p> <p>Comcast operates a cable network (the Accused System) that complies with the DOCSIS 1.0, 1.1 and/or 2.0 specifications for providing high speed internet access (<i>i.e.</i>, communicating data) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>; <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber coax (HFC) cable network.").</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Instrumentalities, Rembrandt contends that that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating data), in substantially the same way (transmitting and/or receiving digital signals), to achieve substantially the same result (enabling the exchange of data), as the recited limitation.</p>
	<p>a time-division multiplexed bus</p> <p>Data in the Comcast network is transmitted over a fiber or coax cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a subplit</p>



	<p>(5-30 MHz) or extended subsplit (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.”); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.3.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing time shared access for multiple communication devices in a single frequency band), in substantially the same way (dividing usage of a channel through a time sharing arrangement), to achieve substantially the same result (enabling a plurality of devices to communicate over the channel in a time sharing arrangement).</p>
having a predefined bandwidth;	<p>Each upstream channel can carry a maximum amount of data, depending on the type of modulation used, in a limited frequency band. (See, e.g., DOCSIS 1.0 and 1.1 at § 2.2.1, and DOCSIS 2.0 at § 4.2.1 (“In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-40 or 5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.”)). Moreover, for each upstream channel, the plurality of time slots the channel is divided into are counted on a fixed 32-bit counter. (See, e.g., DOCSIS 1.0 at § 6.5.4, DOCSIS 1.1 at § 7.3.4, and DOCSIS 2.0 at § 9.3.4.1.2 (“The MAP counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. . . . [M]ini-slot N begins at timestamp reference <math>(N * T * 64)</math>, where <math>T = 2M</math> is the UCD multiplier that defines the mini-slot (<i>i.e.</i>, the number of timeticks per minislot).”))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing a predetermined communications capability), in substantially the same way (by providing a time</p>

	shared communication channel with a known capacity), to achieve substantially the same result (providing a specific communications capacity via a time shared communications channel).
a plurality of synchronous data sources	<p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs ...”).)</p> <p>Certain time slots in the databus between the CMs and the CMTS are designated for Unsolicited Grant Service. The CMs may transmit CBR data in time-slots that are designated for Unsolicited Grant Service. Each CM can and does act as a synchronous data source because it is capable of transmitting CBR data, such as Voice-over-IP (VoIP) data, during time-slots that are designated for Unsolicited Grant Service. (See, e.g., DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 (“Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are likely to exist as well.”); see also DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 (“The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice-over-IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow’s real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally</p>

	<p>present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing CBR data from multiple sources), in substantially the same way (sharing a data channel between multiple sources of data), to achieve substantially the same result (providing CBR data from multiple sources).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).").)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the synchronous data sources and the time shared communication channel), to achieve substantially the same result (enabling the plurality of synchronous data sources to communicate via the time shared communication channel).</p>
for communicating synchronous data in a first portion of the predefined bandwidth;	<p>Each CM that transmits CBR data does so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for synchronous data. This portion of the predefined bandwidth may be designated as a "first portion" of the bandwidth. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs ..."); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation</p>

MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots. "); *see also* DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5, and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station."); *see also* DOCSIS 1.1 at App. M.1.1 and DOCSIS 2.0 at App. VI.1.1 ("Unsolicited Grant Service is an Upstream Flow Scheduling Service Type that is used for mapping constant bit rate (CBR) traffic onto Service Flows. Since the upstream is scheduled bandwidth, a CBR service can be established by the CMTS scheduling a steady stream of grants. These are referred to as unsolicited because the bandwidth is predetermined, and there are no ongoing requests being made. The classic example of a CBR application of interest is Voice over Internet Protocol (VoIP) packets. Other applications are likely to exist as well."); *see also* DOCSIS 1.1 at § 8.2.1 and DOCSIS 2.0 at § 10.2.1 ("The Unsolicited Grant Service (UGS) is designed to support real-time service flows that generate fixed size data packets on a periodic basis, such as Voice over IP. The service offers fixed size grants on a real-time periodic basis, which eliminate the overhead and latency of CM requests and assure that grants will be available to meet the flow's real-time needs. The CMTS MUST provide fixed size data grants at periodic intervals to the Service Flow. In order for this service to work correctly, the Request/Transmission Policy (refer to Appendix C.2.2.6.3) setting MUST be such that the CM is prohibited from using any contention request or request/data opportunities and the CMTS SHOULD NOT provide any unicast request opportunities. The Request/Transmission Policy MUST also prohibit piggyback requests. This will result in the CM only using unsolicited data grants for upstream transmission."))

In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting CBR data in a portion of the time shared communication channel designated for use by the synchronous data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used by the synchronous data



	sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used for synchronous data).
a plurality of packet data sources	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p> <p>In the Accused Instrumentalities, a plurality of CMs communicate with a single CMTS. C (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.")).</p> <p>Certain time slots in the databus between the CMs and the CMTS are designated as Request or Request/Data IEs or as Short or Long Data Grant IEs. The CMs can transmit packet or variable bit rate ("VBR") data in time-slots that are so designated. Each CM can do so as a packet data source because it is capable of transmitting variable bit-rate data, for example during time-slots allotted for Request or Request/Data IEs or Short or Long Data Grant IEs. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header followed by a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests. . . . If unicast, this is an invitation for a particular CM to request bandwidth."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit</p>

	<p>one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.”.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing variable bit-rate data from multiple sources), in substantially the same way (sharing a data channel between multiple sources of data), to achieve substantially the same result (providing variable bit-rate data from multiple sources on a single channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
coupled to the time-division multiplexed bus	<p>Each CM is coupled to the TDMA bus or upstream channel. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS).”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the packet data sources and the time shared communication channel), to achieve substantially the same result (enabling the multiple packet data sources to communicate via the time shared communication channel).</p>
for communicating packet data in a second portion of the	<p>Each CM that transmits variable bit-rate data does so in a portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data, for example, in the form of Request or Request/Data IEs and Short and Long Data Grant IEs issued in response to requests from CMs.</p>

	for variable bit-rate data).	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data,		<p>Each CM that transmits variable bit-rate data during time slots designated as Request or Request/Data IEs or as Short or Long Data Grant IEs shares that portion of the bandwidth of the upstream channel that the CMTS has allotted for packet data. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests. . . . If unicast, this is an invitation for a particular CM to request bandwidth."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (apportioning the part of the time shared communication channel designated for variable bit-rate data among the packet data sources), in substantially the same way (establishing a procedure to determine which packet data sources may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enabling each of the packet data</p>

predefined bandwidth,	<p>Either the portion allotted for Request or Request/Data IEs or the portion allotted to Short and Long Data Grant IEs, or both collectively, may be designated as a "second portion" of the bandwidth. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used."); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests. . . . If unicast, this is an invitation for a particular CM to request bandwidth."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."); see also DOCSIS 1.0 at § 6.4.1.1.5, DOCSIS 1.1 at § 7.1.2.5 and DOCSIS 2.0 at § 9.1.2.5 ("The Short and Long Data Grant IEs provide an opportunity for a CM to transmit one or more upstream PDUs. These IEs are issued either in response to a request from a station, or because of an administrative policy providing some amount of bandwidth to a particular station.")).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (transmitting variable bit-rate data in a part of the time shared communication channel for use by the variable bit-rate data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods, other than those designated for the synchronous data originators, to be used by the variable bit-rate data sources), to achieve substantially the same result (enabling a portion of a time shared communication channel to be used</p>
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	sources to use the part of the time shared communication channel for variable bit-rate data).
	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>wherein each one of the plurality of packet data sources includes interface circuitry to the time-division multiplexed bus for synchronizing packet data to the time-division multiplexed bus, and</p>	<p>Each CM includes interface circuitry (including, e.g., logic and/or time-slot counters) for synchronizing its transmission of packet data on the upstream channel. This interface circuitry may control, for example, the timing of data transmissions from the CM to the upstream channel. <i>See, e.g.,</i> DOCSIS 1.0 at § 6.5.1, DOCSIS 1.1 at § 7.3 and DOCSIS 2.0 at § 9.3 (“[T]he cable modem MUST be able to time its transmissions precisely to arrive at the CMTS at the start of the assigned mini-slot. To accomplish this, two pieces of information are needed by each cable modem: a global timing reference sent downstream from the CMTS to all cable modems; [and] a timing offset, calculated during a ranging process, for each cable modem.”); <i>see also</i> DOCSIS 1.0 and 1.0 at § 4.2.7, and DOCSIS 2.0 at § 6.2.19.1 (“Ranging Offset is the delay correction applied by the CM to the CMTS Upstream Frame Time derived at the CM. It is an advancement equal to roughly the round-trip delay of the CM from the CMTS, and is needed to synchronize upstream transmissions in the TDMA scheme. . . . The CM MUST implement the correction with resolution of at most 1 symbol duration.”).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (matching the transmission of variable bit-rate data to the time periods of the time shared communication channel to which the variable bit-rate data is assigned), in substantially the same way (providing a procedure through which the time periods of the time shared communication channel are tracked), to achieve substantially the same result (ensuring that variable bit-rate data is transmitted during the correct time periods of the time shared communication channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's</p>

		modification to the Local Patent Rules, Rule 3-1(h).
	the interface circuitry includes a counter for counting time-slots representing the second portion of the predefined bandwidth.	<p>The interface circuitry in each CM includes a counter for counting mini-slots on the upstream channel to synchronize its transmission of packet data. The counter allows the CM to transmit data at a selected time slot that is counted by a corresponding counter in the CMTS. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("Note that it should be understood by both CM and CMTS that the lower (26-M) bits of the alloc start and ack times MUST be used as the effective MAP start and ack times where M is given in Section 6.3.3. The relationship between the Alloc Start/Ack time counters and the timestamp counter is described in Section 7.3.4."); see also DOCSIS 1.0 at § 6.5.4 DOCSIS 1.1 at § 7.3.4, and DOCSIS 2.0 at § 9.3.4.1.2 ("The MAP counts mini-slots in a 32-bit counter that normally counts to <math>(2^{32} - 1)</math> and then wraps back to zero. The least-significant bits (i.e., bit 0 to bit 25-M) of the mini-slot counter MUST match the most-significant bits (i.e., bit 6+M to bit 31) of the SYNC timestamp counter. That is, mini-slot N begins at timestamp reference <math>(N * T * 64)</math>, where <math>T = 2M</math> is the UCD multiplier that defines the mini-slot (i.e., the number of time ticks per minislot). Note: The unused upper bits of the 32-bit mini-slot counter (i.e., bit 26-M to bit 31) are not needed by the CM and MAY be ignored.").</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Instrumentalities, Rembrandt contends that the Accused Instrumentalities meet the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (tracking the time periods of a selected portion of the time shared communication channel), in substantially the same way (enumerating the time periods of the selected portion of time shared communication channel), to achieve substantially the same result (transmitting data in appropriate time periods of the selected portion of time shared communication channel).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
15	A method for use in a data communications	Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused

apparatus	<p>Method that correspond to this portion of the claim preamble.</p> <p>Comcast operates a cable network (the Accused System) that utilizes a method or methods that comply with the DOCSIS 1.0, 1.1 or 2.0 specifications for providing high speed internet access (<i>i.e.</i>, data communications) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>; <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.1 (“This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.”) and § 1.3.1 (“The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber coax (HFC) cable network.”))</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating data), in substantially the same way (transmitting and/or receiving digital signals), to achieve substantially the same result (enabling the exchange of data), as the recited limitation.</p>
for transmitting packet data on a time-division multiplexed bus, the method comprising the steps of:	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Method that correspond to this portion of the claim preamble.</p> <p>The methods used in the Comcast network are for transmitting data over a fiber or coax cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 (“In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals.”); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval.”).)</p>

	<p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing time shared access for multiple communication devices in a single frequency band), in substantially the same way (dividing usage of a channel's frequency band through a time sharing arrangement), to achieve substantially the same result (enabling a plurality of devices to communicate over the channel in a time sharing arrangement).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
coupling a plurality of packet data sources to the time-division multiplexed bus;	<p>In the Accused Instrumentalities, a plurality of CMs are coupled to the TDMA bus or upstream channel. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks."))</p> <p>Each CM can act as and acts as a packet data source since each CM is capable of transmitting variable bit-rate data over the TDMA bus. (See, e.g., DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared</p>



	<p>communication channel), in substantially the same way (providing a communication link between each of the variable bit-rate data sources and the time shared communication channel), to achieve substantially the same result (enabling the variable bit-rate data sources to communicate via the time shared communication channel).</p>
<p>allocating a portion of the bandwidth of the time-division multiplexed bus to the plurality of packet data sources</p>	<p>In the Accused Method, the CMTS allocates some of the time slots in each upstream channel for the transmission of packet or variable bit-rate data, for example, during time slots designated as Request or Request/Data IEs. (See, e.g., DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1, and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.")). The allocation MAP can include Request or Request/Data IEs which are time periods in which packet data may be transmitted. (See, e.g., DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.")); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.")).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (designating a part of the time shared communication channel to be used for variable bit-rate data by a number of variable bit-rate data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used for variable bit-rate data), to achieve substantially the same result (enabling a time shared communication channel to be partially used for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's</p>

	modification to the Local Patent Rules, Rule 3-1(h).
in such a way that the allocated portion is shared among the plurality of packet data sources;	<p>Each CM that transmits VBR data during time slots designated as Request or Request/Data IEs shares that portion of the bandwidth of the upstream channel that the CMTS has allocated for packet data. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used."); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests."); see also DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (apportioning the part of the time shared communication channel designated for variable bit-rate data among variable bit-rate data sources), in substantially the same way (establishing a procedure by which variable bit-rate data sources may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enable each of the variable bit-rate data sources to use the part of the time shared communication channel for variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and</p>

	<p>Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>transmitting packet data from the plurality of packet data sources on the allocated portion of the bandwidth; and</p>	<p>Each CM can and does transmit VBR data during that portion of the bandwidth of the upstream channel that the CMTS has allocated for the transmission of packet data. (<i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 ("The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used."); <i>see also</i> DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 ("The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots."); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 ("The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests."); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 ("The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (utilizing the part of the time shared communication channel designated for sending variable bit-rate data by variable bit-rate data sources), in substantially the same way (establishing a procedure by which variable bit-rate data sources may use the part of the time shared communication channel designated for variable bit-rate data at a given time), to achieve substantially the same result (enabling each of the variable bit-rate data sources to use the part of the time shared communication channel for variable bit-rate data).</p>

	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p> <p>Each CM runs software to allocate its own access to the TDMA bandwidth that the CMTS has allocated to all of the CMs for the transmission of packet data. That software executes a binary exponential back-off algorithm that controls the CM's ability to access the portion of the bandwidth the CMTS has allocated for the transmission of packet data. (See, e.g., DOCSIS 1.0 at § 6.4.4, 1.1 at § 7.4 and DOCSIS 2.0 at § 9.4 ("The CMTS controls assignments on the upstream channel through the MAP and determines which mini-slots are subject to collisions. The CMTS MAY allow collisions on either Requests or Data PDUs."); see also DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4.1 and DOCSIS 2.0 at § 9.4.1 ("The mandatory method of contention resolution which MUST be supported is based on a truncated binary exponential back-off, with the initial back-off window and the maximum back-off window controlled by the CMTS. ... The CM MUST randomly select a number within its back-off window. This random value indicates the number of contention transmit opportunities which the CM MUST defer before transmitting. A CM MUST only consider contention transmit opportunities for which this transmission would have been eligible. These are defined by either Request IEs or Request/Data IEs in the MAP. ... After a contention transmission, the CM waits for a Data Grant (Data Grant Pending) or Data Acknowledge in a subsequent MAP. Once either is received, the contention resolution is complete. The CM determines that the contention transmission was lost when it finds a MAP without a Data Grant (Data Grant Pending) or Data Acknowledge for it and with an Ack time more recent than the time of transmission. The CM MUST now increase its back-off window ... MUST randomly select a number within its new back-off window and repeat the deferring process described above."))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (allocating access to the part of the time shared communication channel designated for variable bit-rate data between the variable bit-rate data sources), in substantially the same way (through a collision avoidance mechanism which resides in each variable bit-rate data source for reducing data collisions), to achieve substantially the same</p>
controlling access by said packet data sources to the allocated portion of the bandwidth via a distributed packet manager within each of said packet data sources.	



	<p>result (apportioning access to the time shared communication channel designated for variable bit-rate data between the variable bit-rate data sources).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
20	<p>A method for transmitting packet data on a time-division multiplexed bus in data communications equipment, the method comprising the steps of:</p> <p>Comcast operates a cable network (the Accused System) that utilizes a method or methods that comply with the DOCSIS 1.0, 1.1 and/or 2.0 specifications for providing high speed internet access (<i>i.e.</i>, data communications) over a cable network. (<i>See, e.g.</i>, <a href="http://www.comcast.com/Benefits/CHSIBenefits.asp">http://www.comcast.com/Benefits/CHSIBenefits.asp</a>); <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at § 1.1 ("This document defines the radio-frequency interface specifications for high-speed data-over-cable systems.") and § 1.3.1 ("The intended service will allow transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system headend and customer locations, over an all-coaxial or hybrid-fiber coax (HFC) cable network."))</p> <p>The methods used in the Comcast network are for transmitting data over a fiber or coax cable that is both time and frequency division multiplexed. The cable is frequency division multiplexed in that its bandwidth is divided into a plurality of frequency bands or upstream channels. Each upstream channel is then time division multiplexed or divided into a plurality of time slots. <i>See, e.g.</i>, DOCSIS 1.0 and 1.1 at § 2.2.1 and DOCSIS 2.0 at § 4.2.1 ("In the upstream direction, the cable system may have a subsplit (5-30 MHz) or extended subsplit (5-42 MHz) passband. NTSC analog television signals in 6-MHz channels may be present, as well as other signals."); <i>see also</i> DOCSIS 1.0 and 1.1 at § 3.5.3, DOCSIS 2.0 at § 5.5.3 ("Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval.").</p> <p>In the Accused Method, packet data is transmitted. Each CM can act as and acts as a packet data source since each CM is capable of transmitting variable bit-rate data over the TDMA bus. (<i>See,</i></p>

	<p><i>e.g.</i>, DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating variable bit-rate data), in substantially the same way (transmitting and/or receiving digital signals by sharing access to a network in a time-dependent fashion), to achieve substantially the same result (enabling the exchange of data while helping avoid collisions), as the recited limitation</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
allocating a portion of the bandwidth of the time-division multiplexed bus as a multiple-access packet channel;	<p>In the Accused Method, the CMTS allocates some of the time slots in each upstream channel to all of the CMs, allowing all of the CMs to contend to transmit packet or variable bit-rate data during the allocated time slots. For example, the CMTS can and does allocate time slots designated as broadcast Request or Request/Data IEs. The CMs contend to transmit packet data during these time slots, which therefore act as a multiple-access packet channel. (See, <i>e.g.</i>, DOCSIS 1.0 and 1.1 at § 3.5.3, DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define</p>

	<p>transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (designating a part of the time shared communication channel to be used for variable bit-rate data by a number of variable bit-rate data sources), in substantially the same way (dividing the time shared communication channel into time periods and designating certain time periods to be used by a plurality of sources for the transmission of variable bit-rate data), to achieve substantially the same result (enabling a time shared communication channel to be partially used by a plurality of sources for the transmission of variable bit-rate data).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
coupling a plurality of packet data sources to the time-division multiplexed bus;	<p>In the Accused Instrumentalities, a plurality of CMs are coupled to the TDMA bus or upstream channel. (<i>See, e.g.,</i> DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks.”).)</p> <p>Each CM can act as and acts as a packet data source since each CM is capable of transmitting variable bit-rate data over the TDMA bus. (<i>See, e.g.,</i> DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1, and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides an upstream interval in which</p>

	<p>requests MAY be made for bandwidth for upstream data transmission. . . . If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing access to the time shared communication channel), in substantially the same way (providing a communication link between each of the variable bit-rate data sources and the time shared communication channel), to achieve substantially the same result (enabling the variable bit-rate data sources to communicate via the time shared communication channel).</p>
controlling the access by said packet data sources to the allocated portion of the bandwidth via a distributed packet manager within each of said packet data sources;	<p>Each CM runs software to allocate its own access to the TDMA bandwidth that the CMTS has allocated for the transmission of packet data in a multiple access packet channel. . . . That software executes a binary exponential back-off algorithm that controls the CM’s ability to access the portion of the bandwidth the CMTS has allocated for the transmission of packet data. (<i>See, e.g.</i>, DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.4, and DOCSIS 2.0 at § 9.4 (“The CMTS controls assignments on the upstream channel through the MAP and determines which mini-slots are subject to collisions. The CMTS MAY allow collisions on either Requests or Data PDUs.”); <i>see also</i> DOCSIS 1.0 at § 6.4.4, DOCSIS 1.1 at § 7.4.1 and DOCSIS 2.0 at § 9.4.1 (“The mandatory method of contention resolution which MUST be supported is based on a truncated binary exponential back-off, with the initial back-off window and the maximum back-off window controlled by the CMTS. . . . The CM MUST randomly select a number within its back-off window. This random value indicates the number of contention transmit opportunities which the CM MUST defer before transmitting. A CM MUST only consider contention transmit opportunities for which this transmission would have been eligible. These are defined by either Request IEs or Request/Data IEs in the MAP. . . .After a contention transmission, the CM waits for a Data Grant (Data Grant Pending) or Data Acknowledge in a subsequent MAP. Once either is received, the contention resolution is complete. The CM determines that the contention transmission was lost when it finds a MAP without a Data Grant (Data Grant Pending) or Data Acknowledge for it and with an Ack time more recent than the time of</p>



	<p>transmission. The CM MUST now increase its back-off window . . . MUST randomly select a number within its new back-off window and repeat the deferring process described above.”) DOCSIS 1.1 at § 7.4.1.)</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (allocating access to the part of the time shared communication channel designated for variable bit-rate data between the variable bit-rate data sources), in substantially the same way (through a collision avoidance mechanism which resides in each variable bit-rate data source for reducing data collisions), to achieve substantially the same result (apportioning access to the time shared communication channel designated for variable bit-rate data between the variable bit-rate data sources)</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
transmitting packet data from the one of the plurality of packet data sources having access to the multiple-access packet channel.	<p>In the Accused Instrumentalities, each CM can and does transmit variable bit-rate data during that portion of the bandwidth of the upstream channel that the CMTS has allocated for the transmission of packet data. (See, e.g., DOCSIS 1.0 and 1.1 at § 3.5.3, and DOCSIS 2.0 at § 5.5.3 (“The upstream channel is characterized by many transmitters (CMs) and one receiver (the CMTS). Time in the upstream channel is slotted, providing for Time Division Multiple Access at regulated time ticks. The CMTS provides the time reference and controls the allowed usage for each interval. Intervals may be granted for transmissions by particular CMs, or for contention by all CMs. CMs may contend to request transmission time. To a limited extent, CMs may also contend to transmit actual data. In both cases, collisions can occur and retries are used.”); see also DOCSIS 1.0 at § 6.4.1, DOCSIS 1.1 at § 7.1.1 and DOCSIS 2.0 at § 9.1.1 (“The allocation MAP is a varying-length MAC Management message that is transmitted by the CMTS to define transmission opportunities on the upstream channel. It includes a fixed length header and a variable number of information elements (IEs). . . . Each information element defines the allowed usage for a range of mini-slots.”); see also DOCSIS 1.0 at § 6.4.1.1.1, DOCSIS 1.1 at § 7.1.2.1 and DOCSIS 2.0 at § 9.1.2.1 (“The Request IE provides</p>

	<p>an upstream interval in which requests MAY be made for bandwidth for upstream data transmission. ... If broadcast, this is an invitation for CMs to contend for requests.”); <i>see also</i> DOCSIS 1.0 at § 6.4.1.1.2, DOCSIS 1.1 at § 7.1.2.2 and DOCSIS 2.0 at § 9.1.2.2 (“The Request/Data IE provides an upstream interval in which requests for bandwidth or short data packets MAY be transmitted.”).</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (providing variable bit-rate data from a variable bit-rate data source), in substantially the same way (providing the variable bit-rate data during the part of the time shared communication channel designated for access by multiple variable bit-rate data sources), to achieve substantially the same result (providing the variable bit-rate data during the part of the time shared communication channel designated for access by multiple variable bit-rate data sources).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
26	<p>The method of claim 20 further comprising the step of coupling a network access module to the time-division multiplexed bus for receiving the packet data for transmission over a network facility.</p> <p>In the Accused Instrumentalities, a CMTS is coupled to one end of the TDMA bus, and acts a network access manager that communicates the synchronous and packet data transmitted over the upstream channel to a wide area network to which it is also attached. (<i>See, e.g.,</i> DOCSIS 1.0, 1.1 and 2.0 at Figure 1-1 (showing the CMTS coupled at one end to the cable network and at the other end to a wide area network); <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 at Figure 1-2 (showing the CMTS coupled at one end to the cable network and at the other end to both the public switched telephone network (“PSTN”) and to a wide area backbone network (“WAN”)); <i>see also</i> DOCSIS 1.0, 1.1 and 2.0 § 1.3.1 (“The transmission path over the cable system is realized at the headend by a Cable Modem Termination System (CMTS), and at each customer location by a Cable Modem (CM). At the headend (or hub), the interface to the data-over-cable system is called the Cable Modem Termination System - Network-Side Interface (CMTS-NSI) and is specified in [DOCSIS3]. At the customer locations, the interface is called the cable-modem-to-customer premises-equipment interface (CMCI) and is specified in [DOCSIS4]. The intent is for operators to transparently transfer</p>

	<p>IP traffic between these interfaces, including but not limited to datagrams, DHCP, ICMP, and IP Group addressing (broadcast and multicast).”))</p> <p>In the event this limitation is construed or applied in such a way that it is found not to be literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Instrumentalities are insubstantial. The aforementioned features perform substantially the same function (communicating CBR and variable bit-rate data from the time shared communication channel to a communication network), in substantially the same way (coupling the time shared communication channel to the communication network), to achieve substantially the same result (enabling CBR and variable bit-rate data sources to provide CBR and variable bit-rate data to a communication network).</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>
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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on June 21, 2006, a true and correct copy of this document was served on the following attorneys of record at the address and in the manner indicated:

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IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION, COMCAST  
CABLE COMMUNICATIONS, LLC, and  
COMCAST OF PLANO, LP

Defendants.

Case No. 2:05-CV-443 (TJW)

Jury Trial Demanded

**PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND PRELIMINARY  
INFRINGEMENT CONTENTIONS**

Preliminary Infringement Analysis for U.S. Patent No. 5,852,631

**A. Identification of Infringed Claims**

Pursuant to Local Patent Rule 3-1(a), Rembrandt hereby identifies claims 1 and 3-10 of U.S. Patent No. 5,852,631 ("the '631 patent") as infringed by Defendants (also referred to collectively herein as "Comcast").

**B. Identification of Accused Instrumentalities**

Defendants infringe claims 1 and 3-10 of the '631 patent by their sale, offer for sale, use or operation of cable modem networks including cable modems and cable modem termination systems that have the capability of being operated in compliance with the Data-Over-Cable Service Interface Specification (DOCSIS), version CM-SP-RFIV2.0-I09-050812, dated August 12, 2005 (the "DOCSIS 2.0 standard"). Certain cable modem networks, cable modems, and cable modem termination systems that are sold, leased, or operated by defendants conform to the DOCSIS 2.0 standard.

Accordingly, pursuant to Local Patent Rule 3-1(b), Rembrandt identifies as the Accused Instrumentalities (1) Comcast's high speed cable modem network and infrastructure, including any DOCSIS 2.0-compliant cable modems and DOCSIS 2.0-compliant cable modem termination systems configured for use in the Defendant's cable modem network ("Accused System"), (2) Comcast's use or operation of its high speed cable modem network and infrastructure ("Accused Method"), and (3) any computer software (including firmware, whether stored on an EPROM, EEPROM, field programmable gate array, or otherwise) configured for use in Comcast's high speed cable modem network and infrastructure, including in any DOCSIS 2.0-compliant cable modems ("Accused CM Software") and DOCSIS 2.0-compliant cable modem termination systems ("Accused CMTS Software"), (collectively, "Accused Software").

The DOCSIS 2.0-compliant CMs and CMTSes configured for use in Comcast's high speed cable modem network include, without limitation, those products identified in Exhibit A, attached hereto, that are compatible with at least DOCSIS 2.0. Rembrandt is not currently aware of the names or model numbers of all the CMs and CMTSes used by Defendants or by customers of Defendants, and reserves the right to modify or supplement the attached list as discovery progresses.

Rembrandt reserves the right to add additional Accused Instrumentalities as discovery progresses, including equipment or methods compatible with other versions of the DOCSIS standard, including DOCSIS 1.0 and DOCSIS 1.1.

**C. Preliminary Infringement Claim Chart**

Pursuant to Local Patent Rule 3-1(c), Plaintiff provides the following claim chart, attached hereto as Exhibit B, that explains how Defendants infringe the asserted claims in connection with their sale, offer for sale use and/or operation of a high speed cable modem network that includes DOCSIS 2.0 compliant CMs and CMTSes. The citations to the DOCSIS 2.0 specification are included for reference, but should not be construed as limiting.

**D. Reliance on the Doctrine of Equivalents**

Pursuant to Patent Local Rule 3-1(d), Plaintiff presently contends that the sale, offer for sale, and/or use of such devices by defendants literally infringes the identified claims. In addition, Plaintiff contends that each claim limitation is met under the doctrine of equivalents, as set forth below. Plaintiff has included certain contentions regarding doctrine of equivalents, but reserves the right to modify or supplement any such contentions to the extent made relevant by the Court's claim construction ruling or subsequent discovery of facts of which Plaintiff is not currently aware.

In the event that discovery reveals that the Accused Instrumentalities utilized by Defendants implement the claimed invention in software, Plaintiff reserves the right, pursuant to the Order Relating To Patent Cases Before Judge T. John Ward ("Appendix C"), Rule 3-1(h), to provide supplemental infringement contentions following the production of source code for such software, should such supplemental contentions be necessary.

In the following claim charts, Plaintiff has subdivided each claim element into sub-elements to more clearly indicate where on the Accused Instrumentalities each element may be found. The subdivisions in the following chart should not be taken as an indication of the boundaries of claim elements for the purposes of determining infringement under the doctrine of equivalents.

**E. Statement of Earliest Priority Date**

Pursuant to Patent Local Rule 3-1(e), Plaintiff states that the earliest priority date all claims of the '631 Patent are entitled to is the June 21, 1996 filing date of U.S. Provisional Application Serial No. 60/02,474.

**F. Identification of Instrumentalities Embodying the Patent**

Pursuant to Patent Local Rule 3-1(f), Plaintiff states that it does not manufacture any products that embody the claims of the '631 Patent.

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on June 21, 2006, a true and correct copy of this document was served on the following attorneys of record at the address and in the manner indicated:

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## CableHome® - DOCSIS® - PacketCable™ Certified Products - 10/26/05

CH = CableHome, D = DOCSIS, PC = PacketCable

Beginning with Certification Wave 28, products may be awarded certification/qualification of multiple specifications through the CableLabs™ combined certification program.

Note that combined certification will not apply retroactively to any product certified prior to Certification Wave 28, unless that product is submitted for re-certification.

Disclaimer: The model number, software version and hardware information is provided by the vendor when submitting product for certification and CableLabs assumes no responsibility for accuracy or completeness of that information.

\* This product is certified only for the uses as defined in the executive summary of the certification application.

CW	Version	Type	Manufacturer	CL ID	Model #	SW Version	HW Version	OEM Vendor ID	Spec Combo - Certified As	Verified For Interoperability
39	D2.0	CM	WideView Technology	WV391	WM-100	17.1.17	35.4.2		D1.1, D2.0	
38	C1.1	Embedded PS	SNC	Snc391	SMC0014WG-CHM	3.17.11	1.65		D1.1, D2.0, CH1.1	
39	D2.0	CM	Askey	Aske391	CAM300	2.0.3.8.5	1.0		D1.1, D2.0	
38	D1.1	CM	Tollgrade	Toll381	1.0.0	1.0.2	1.0.0		D1.1	
38	D2.0	DSG eCM	Pace	Pace381	TDG75D	3.7.16001	V1.0		D1.1, D2.0	X
38	D2.0	CM	Artis	Art381	TM502G	4.5.0	01		D1.1, D2.0	
38	PC1.0 in D2.0	EMTA	Motorola	Moto382	SBV5200	SBV5200-2.1.3710.1-	1		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Motorola	Moto383	SBV5121	SBV5121-2.17.5.23-	1		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Pace	Pace382	DVC203	V05.38.01	V1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci381	DPC2223	V2.0.21254	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Thomson	Thom381	DHG535	ST70.01.00	1.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Thomson	Thom382	DHG525	ST62.06.00	5.0		D1.1, D2.0, PC1.0	
38	PC1.0 in D2.0	EMTA	Anelit	Ambl381	U16C021	4.7.1.1001	2.31		D1.1, D2.0, CH1.1	
38	C1.1	Embedded PS	Cisco-Linksys	Link383	WCG104	2.0.3.7.16	2.0		D1.1, D2.0, CH1.1	
38	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link382	CMP200B	2.0.3.7.16	1.0		D1.1, D2.0, PC1.0	
38	C1.1	Embedded PS	Motorola	Moto301	SEG940	SBG940-2.1.1.1-	1		D1.1, D2.0, CH1.1	
38	D2.0	CM	Alpha	Alpha381	Alpha CM-H	2.0.0.01A11.0	1.0		D1.1, D2.0	
38	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link381	CMP300B	17.0.5.23	56.0		D1.1, D2.0, PC1.0	
37	P1.1	MG	Nuera	4Nu371	BTX-4K	1.1	A		PC1.0, PC1.1	
37	P1.1	MGC	Siemens	3Si371	Surpass HQ 8000	08.04.01.US.05	1	Sun Microsystems	PC1.0, PC1.1	
37	P1.1	MGC	Nortel	3Nor371	CS 2000 MGC	SN08.PSM	1	Netra 1400T	PC1.0, PC1.1	
37	P1.1	CMS	Siemens	0Si371	Surpass HQ 8000	08.04.01.US.05	1	Sun Microsystems	PC1.0, PC1.1	
37	P1.1	CMS	Nortel	0Nor371	CS 2000 CMS	SN08.PSC	1	Netra 1400T	PC1.0, PC1.1	
37	D2.0	CM	Turbocomm	Turb371	EC420	17.0.1.11	29.2	SN08.PHC	D1.1, D2.0	
37	D2.0	CM	Motorola	Moto371	S05121	SCN01-NOSH	1.0		D1.1, D2.0	
35	D1.1	CM	Asustek	Asu371	ACM0049EB	3.7.7	3.00		D1.1, D2.0	
35	D1.1	CM	Toshiba	Toh352	PCX2000	2.1R.007	3.2.1		D1.1	
35	D2.0	CM	Toshiba	Toh351	PCX3200	8.43.2	25.0.0		D1.1, D2.0	
35	D2.0	CM	Arris	Art351	TTM402P Phase 2	4.4.1	32		D1.1, D2.0	
34	PC1.0 in D2.0	EMTA	Thomson	Thom341	DHG525	ST62.06.00	5.0		D1.1, D2.0, PC1.0	
34	PCMM in D2.0	CMTS+MM	Motorola	2Moto341	BSR 64000	4.1.010BP10.12 KRAU	CHS-0009-01		D2.0, PCMM	
34	PCMM	Policy Server	Telecordia	5Tel341	Policy Manager 1.0	PS-R1.0-200502091209	SUNW.Ultra-60		PCMM	
34	P1.1	EMTA	Cisco	4Cis341	MG38960	5.50	VXSM		PC1.0, PC1.1	
34	PC1.0 in D2.0	EMTA	Arbit	Arb341	U10C317	4.36.1018	2.22		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	Camland	5Cam341	CAMS-2275	2.0.0	Intel SR 1300 Server		PCMM	
34	D2.0	CMTS	Bigband Networks	2Bbp341	Cuda 12000 (C12-	R6.0.0	Rev 4		D1.1, D2.0	
34	P1.0	MG	Nuera	4Nu341	DM245-2.0	1.1.0.4	A		PC1.0	
34	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link341	CM9P2B	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link342	CGP2PWB	2.0.3.5.10	2.1		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	Netgear	Nlg341	CVG824G	3.5.8201	1.00		PCMM	
34	PC1.0 in D2.0	EMTA	Tazz Networks	5Taz341	Tazz PCS	PCMM 1.2	SUN V60V20z		D1.1, D2.0, PC1.0	
34	PCMM	Policy Server	Terronyl	Ter341	ODSP	16.0.0.10	31.6		PCMM	
34	PCMM	Policy Server	CableMatrix	5Cah341	NA	0.6.6	NA		PCMM	
34	PCMM	Policy Server	C-Or	5Cor341	ASX Access Server	1.0	NA		PCMM	
33	PC1.0 in D2.0	CMS	Sonus	0Son341	DPX2213	V06.01.00F004	1.0	SUNFIRE V120	D1.1, D2.0, PC1.0	
33	D2.0	CM	Scientific Atlanta	Sci332	BEFCMU10 ver. 5	V2.0.21251	2.0		D1.1, D2.0	
33	C1.1	Embedded PS	Cisco-Linksys	Link331	U10C019	2.0.3.5.6	4.10		D1.1, D2.0, CH1.1	
33	PC1.0 in D2.0	EMTA	Arbit	Ambl331	CGP2PWB	5.05.1000	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link333	DPX2203	V2.0.21151	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci332	CM9P2B	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Cisco-Linksys	Link332	CM9P2B	2.0.3.5.6	2.1		D1.1, D2.0, PC1.0	
33	PC1.0 in D2.0	EMTA	Thomson	Thom331	DHG525	ST62.05.00	5.0		D1.1, D2.0, PC1.0	

32	D2.0	CMTS-DSG Agent	Motorola	2Moto321	BSR 64000	4.1.0T08P10.KRAU	CHS-0009-01	Cone291	D1.1, D2.0
32	D2.0	CM	Zoom	Zoom321	5241	5.35.33.5	100		D1.1, D2.0
32	D2.0	CMTS-DSG Agent	Arris	2Amc321	C4-CMTS-2100-1	CMTS_V04.02.00.10	2.0		D1.1, D2.0
32	D1.1	CMTS-DSG Agent	Bigband Networks	181gb321	Cuda 12000	15.0.0.20	Rev 4		D1.1
32	D2.0	CM	Terayon	Tera321	TJ716x	3.00.DV.LPR	56.1		D1.1, D2.0, CH1.1
32	C1.1	Embedded PS	Zydel	Zydel322	Prestige 974	2.23.7	V3.9		D1.1, D2.0, CH1.1
32	D1.0	DSG eCM	Scientific Atlanta	Sca321	3300.DV.LPR	V3.70.01	1.0		D1.1, D2.0, CH1.1
32	C1.1	Embedded PS	Zydel	Zydel321	Prestige 971	STSA.06.01	V4.1		D1.1, D2.0, CH1.1
32	C1.1	Embedded PS	Thomson	Thom321	DCW725	2.0.3.4.2	4.1		D1.1, D2.0, CH1.1
32	C1.1	Embedded PS	Cisco-Linksys	Link321	CGP22WB	4.4.1	07		D1.1, D2.0, CH1.1
32	D2.0	CM	Arris	Am321	TM402G	1.0.2	1.02		D1.1
32	D1.1	CM	Tollgrade	Toll321	CG814WG	3.4.2	1.02		D1.1, D2.0, CH1.1
32	C1.1	Embedded PS	Netgear	Nigr321	uBR7246 VXR/MC28U	12.2(15)RC2p1	MC28U Rev 6.5		D1.1, PC1.0, PC1.1
31	PC1.1 in D1.1	CMTS+PC	Cisco	1Csc311	SBV5220	SCM01-NOSH	1		D1.1, D2.0, PC1.0
31	PC1.0 in D2.0	EMTA	Motorola	Moto311	DHT-PS-NA-01	2.14	02		D1.1
31	D1.1	CM	Electroline	Elec311	9362	1.88	4.0		D1.1
31	D1.1	CM	AM Communications	Amco311	1.0.0	1.0.2	1.0.0		D1.1
31	D1.1	CM	Tollgrade*	Toll311	BSR 64000	4.1.0T04P08.KRAU	CHS-0009-01		D1.1, D2.0
30	D2.0	CMTS	Motorola	2Moto301	DHT-PS-NA-01	2.10	01		D1.1
30	D1.1	CM	Electroline	Elec302	DCW725	STSA.02.01	4.0		D1.1, D2.0, CH1.1
30	C1.1	Embedded PS	Thomson	Thom302	TJ716x	14.0.1.4.01	35.0		D1.1, D2.0
30	D2.0	CM	Terayon	Tera301	SBV5220	SBV5220-2.9.1.0-	1		D1.1, D2.0
30	D2.0	CM	Motorola	Moto301	CM2P2B	SCM09-NOSH	2.0		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Cisco-Linksys, LLC	Link301	DPX2203	V2.0.2.1.143	2.1		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sca301	U10C017	4.36.1007	2.22		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Arris	Am301	CGP22WB	2.0.3.2.5	2.0		D1.1, D2.0, PC1.0
30	PC1.0 in D2.0	EMTA	Cisco-Linksys, LLC	Link302	WebSTAR DPC2100	V2.0.2.1242	2.0		D1.1, D2.0
29	D2.0	CM	Scientific Atlanta	Sca292	BSR 64000	3.1.0T09P57.05.KRBU	CHS-0009-01		D1.1, PC1.0, PC1.1
29	PC1.1 in D1.1	CMTS+PC	Motorola	1Moto291	U10C018	2.93.1003	1.20		D1.1, D2.0
29	D2.0	CM	Arris	Am291	BEFCMU10 ver. 4	2.0.3.1.1	2.0		D1.1, D2.0
29	D2.0	CM	Cisco-Linksys	Link291	ACM951	5.35.33.5	100		D1.1, D2.0
29	D2.0	CM	Conexant	Cone291	XCM951	5.35.33.5	10		D1.1, D2.0
29	D2.0	CM	Motorola	Moto291	SB5120	SCM05-NOSH	4		D1.1, D2.0
29	D2.0	CM	Thomson	Thom291	DCM426	ST52.01.02	4.0		D1.1, D2.0
29	D2.0	CM	Scientific Atlanta	Sca291	WebSTAR DPC2100	V2.0.2.1142	1.2		D1.1, D2.0
29	C1.1	PS	Cisco-Linksys	Link293	CGV2W	2.0.3.1.0	2.0		D1.1, D2.0, CH1.1
29	D1.1	CMTS	AOC	1Adco291	Cuda 12000	R5.5.0	Rev 4		D1.1
29	D1.1	CMTS	Motorola	1Moto292	BSR 64000	3.1.0T09P57.05.KRBU	CHS-0009-01		D1.1
29	P1.0	MG	AudioCodes	4Audc291	Mediant 5000	2.0.30.1.6	Rev. B		PC1.0
29	P1.0	MG	General Bandwidth	4Gene291	G8	rel.1001.0.0.BX	1.0		D1.1, D2.0, CH1.0
29	PC1.0 in D2.0	EMTA	Motorola	Moto292	SBV5120	SCM16-NOSH	1		D1.1, D2.0, PC1.0
29	C1.1	Embedded PS	Cisco-Linksys	Link292	WC6200 ver. 2	2.0.3.1.1	2.0		D1.1, D2.0, CH1.1
29	D2.0	CMTS	Arris	2Am291	C4-CMTS-2100-1	CMTS_V04.00.00.104	2.0		D1.1, D2.0
28	C1.0	Embedded PS	Arris	Am292	60740EU	5.11.1111	4.7		D1.1, CH1.0
28	D2.0	CM	Motorola	Moto286	SBG900	2.1.8.2SCM01	3		D1.1, D2.0
28	C1.0	Embedded PS	Motorola	Moto282	SBG940	SBG940-2.1.8.1-	1		D1.1, D2.0, CH1.0
28	D2.0	CM	Motorola	Moto281	SBG940	SBG940-2.1.8.1-	1		D1.1, D2.0
28	D2.0	CM	Motorola	Moto287	SB5101	SCM00-NOSH	1		D1.1, D2.0
28	D2.0	CM	Motorola	Moto283	SBV5120	SCM120-2.8.0.4-	1		D1.1, D2.0
28	C1.1	Embedded PS	Cisco-Linksys	Link281	WC6200	SCM02-NOSH	1.2b		D1.1, D2.0, CH1.1
28	D2.0	CM	Shenzhen Coship	Cash281	CM2000A	2.0.2.10.0	35.0		D1.1, D2.0
28	D2.0	CM	Askey	Aske281	CME100	12.0.2.13	2.1		D1.1, D2.0
28	D2.0	CM	D-Link	Dlin281	DCM-202	2.0.2.0.6	1A		D2.0
28	D2.0	CM	Daehae	Daeh281	LP3280	2.0.1	29.2		D1.1, D2.0
28	D2.0	CMTS	Arris	2Am281	710622 (C3)	4.0.1.45	04		D1.1, D2.0
28	D2.0	CM	Castrol	Cast281	DP1110XB2A	2.7.2.280	1.0		D1.1, D2.0
28	D2.0	CM	Arris	Am281	10018EU	2.03.1000	1.1b		D1.1, D2.0
28	P1.0	MGC	Nortel Networks	3Nor281	CS 2000 MGC	SN06.PSM	SN06.PSM		PC1.0
28	D2.0	CM	Castrol	Cast282	DP1110XB2	2.5.2.117	1		D1.1, D2.0
28	C1.1	Embedded PS	Netgear	Nigr281	CG814WG	2.10.0R01	1.02		D1.1, D2.0, CH1.1
28	D2.0	CM	Conexant	Cone281	ACM951	5.29.30.6.MO0B	100		D1.1, D2.0

# EXHIBIT A PART 4

26	P1.0	CMS	Siemens	(Sci)281	Surpass hiQ 8000	08.02.01 US.09	Sun Microsystems	PC1.0
26	PC1.1 in D1.1	CMTS+PC	Cisco	1Csc281	uBR7246 VXR/MC28U	12.21.5JBC2p	Natra 1400T	D1.1, PC1.0, PC1.1
26	PC1.0 in D2.0	EMTA	Artis	Art281	TM402P	TS.04.01.01.013004C	MC28U: Rev 6.5	D1.1, D2.0, PC1.0
26	D1.1	CM	Electrothe	Ele281	DFT-PS-NA-01	2.00	01	D1.1
26	D1.1	CM	Toshiba	Tosh281	PCX1100DAZ8	1.8.022	6.11	D1.1
26	D1.1	CM	Toshiba	Tosh282	PCX1100DAZ8613	1.8.022	6.62	D1.1
26	D1.0	CM	Thomson	Thom282	DCM325	ST31.06.01	1.7	D1.0
26	D1.0	CM	Thomson	Thom281	DCM325	ST32.00.00	1.7	D1.1, D2.0
26	D2.0	CM	Conexant	Cone282	DCM351	5.29.30.6 MIAMI	010	D1.1, D2.0
26	D2.0	CM	Conexant	Cone282	60740ELW	5.11.1111	4.7	CH1.0
27	C1.0	Embedded PS	Artek	Art272	BEFCMU10 ver.3	2.0.2.0.1	1.0	D2.0
27	D2.0	CM	Cisco-Linksys	Link271	TJ816g	4.21.5	41.0	D1.1
27	D2.0	CM	Terayon	Teraz72	uBR7246VXR/MC28U	12.21.5JBC2p	MC28U: Rev 6.2	CH1.0
27	D1.1	CMTS	Cisco	1Csc271	SGS900-2.1.6.2-	12.21.5JBC2p	2	D1.1
27	C1.0	Embedded PS	Motorola	Moto271	SGS900	SCM02-NOSH	10	PC1.0
27	D1.1	CM	Best Data	Best271	CMX300V2	0.14457.2570	2	D2.0
27	D1.0	CMS	Telcordia	OTec271	Telcordia Call Agent	2.3.3	Sun Ultra 80	PC1.0
27	D2.0	CM	Scientific Atlanta	Sci273	WebSTAR DPC2100	V2.0.1r1133	1.1	D2.0
27	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci271	WebSTAR DPC2203	V2.0.1r1133	1.1	PC1.0
27	D2.0	CM	Toshiba	Tosh271	PCX2600DAZ8623	3.0.14	18.0.1	D2.0
27	D2.0	CM	Scientific Atlanta	Sci274	WebSTAR DPC2100	V2.0.1r1134	1.1	CH1.0
27	C1.0	Embedded PS	Scientific Atlanta	Sci272	WebSTAR DPR2320	V2.0.1r1133	1.1	CH1.0
27	C1.0	Embedded PS	Nelgear	Nlg271	CG814WVG	2.92R01	1.02	D2.0
27	D2.0	CM	Thomson	Thom271	DCM315	ST32.0A.00	3.1	D2.0
27	D2.0	CM	Motorola	Moto273	SB5100	SB5100-2.3.1.6-SCM01-	3	D2.0
27	D2.0	CM	Motorola	Moto272	SBG900	SBG900-2.1.6.0-	2	D2.0
27	D2.0	CM	Cablex, Inc.	Cab271	CRM3800	SCM04-NOSH	2	D2.0
27	D2.0	CM	Zyrel	Zyrel271	Freight 984	SW_REV.3.51	HW_REV.3.5	D2.0
27	P1.0	MGC	Cisco	3Csc271	BTS10200	RSL 4.1Q11	BTS10200	PC1.0
27	P1.0	CMS	Cisco	OCsc271	BTS10200	RSL 4.1Q11	BTS10200	PC1.0
27	P1.0	CMS	Cedar Point	OCsc271	SAFARI	R3.0.9.3	1.2	PC1.0
26	D2.0	CM	Motorola	Moto262	SBG900	SBG900-2.1.3.4-	1	D2.0
26	D1.0	CM	Thomson	Thom262	DCM625DCM625R	SCM09-NOSH	1.1	D1.0
26	D1.0	CM	Ambil	Amb261	60578EU	ST41.03.00	1.12	D1.0
26	D1.0	CM	Scientific Atlanta	Sci261	WebSTAR DPC2100	2.57.100Z	1.11	D1.0
26	P1.0	MG	Nuova	Nuova261	BTX-8	V1.0.1r1131-0424	2.0	PC1.0
26	P1.0	CM	Cedar Point	OCsc261	SAFARI	2.0.7.3	1.1	PC1.0
26	P1.0	CMS	Thomson	Thom265	DCM615 (DCM615R)	ST48.04.00	1.4	PC1.0
26	D1.1	CM	Scientific Atlanta	Sci263	WebSTAR DPR2320	V2.0.1r1132	1.1	CH1.0
26	PC1.0 in D1.1	CMTS+PC	ADC	1Adco261	Cuda 12000 (C-12	RS.0.0	CMTS: Rev 14	PC1.0
26	D2.0	CM	Motorola	Moto261	SB5100	SB5100-2.3.0.9-SCM01-	3	D2.0
26	D2.0	CM	Scientific Atlanta	Sci265	WebSTAR DPC2100	NOSH	1.0	D2.0
26	D2.0	CM	Akey	Akey261	CME100	V2.0.1r1132	2.1	D2.0
26	P1.0	CMS	Nortel Networks	QNor261	CS2000	SN06.PSC	SN06.PHC	PC1.0
26	D2.0	CM	Joohang	Joo261	SL2910	10.2.0	28.2	D2.0
26	D2.0	CM	Zyrel	Zyrel261	Freight 964	3.60	3.6	D2.0
26	D1.1	CM	Linksys	Link264	WCG200	1.1.3.0.1	1.2b	D1.1
26	D1.1	CMTS	Artis	Art261	CMTS 2000	3.2.1.100.001	2	D1.1
26	PC1.0 in D2.0	EMTA	Scientific Atlanta	Sci264	WebSTAR DPC2203	V2.0.1r1132	1.1	PC1.0
26	D1.1	CM	Motorola	Moto264	SB5100	SB5100-1.4.8.13-	1	D1.1
26	D1.1	CM	Beikun	Beik261	FSD5530-W	0.14457.2571	10	D1.1
26	D1.1	CM	Castlernet	Cas261	CXC-150	0.14457.2570	10	D1.1
26	D1.1	CM	SMC	Sme261	SMC2004CM	2.0.1	1A	D1.0
26	D1.0	CM	Thomson	Thom261	DCM315/DCM315R	ST31.07.00	1.3	D1.0
26	D1.0	CM	Thomson	Thom264	DCM315/DCM315R	ST31.08.00	1.5	D1.0
26	C1.0	Embedded PS	Nelgear	Nlg261	CG814WVG	2.90R01	1.02	D2.0
26	D2.0	CM	Thomson	Thom263	DCM316DDCM316R	ST36.10	50.1	D2.0
26	D2.0	CM	Texas Instruments	Tex261	TNETC421A	10.2.4	51.2	D2.0
26	D2.0	CM	Terayon	Teraz63	TJ715X	6.22	10.0	D2.0
26	D2.0	CM	Terayon	Teraz62	TA-102	6.0.1v	9.3	D2.0
26	D1.1	CM	Toshiba	Tosh263	PCX2200DAZ8617	1.8.017	7.4	D1.1

26	D1.1	CM	Motorola	Motor263	SGS1000	SBG1000-1.1.3.5-SCM00-NOSH	1	D1.1
26	D1.1	CM	Linksys	Link261	BEFCMU10 ver.3	1.1.1.0.1 5.19.20.2.FORTMESH.	1.0	D1.1
26	D1.1	CM	Castlenet	Cast262	CXC250	2561	010	D1.1
26	D1.1	CM	Linksys	Link263	WCG200	1.1.3.0.1	1.2b	D1.1
25	D1.0	CM	Synabo	OSync251	Synco 426	2.2.6.8	9.0	PC1.0
25	D1.0	CM	Terayon	Teraz253	TJ715	6.20	Sun Blade 1000	D1.1
25	D1.0	CM	Linksys	Link256	WCG200	2.0.1.0.2	1.0b	CH1.0
25	D1.0	CM	Thomson	Thom254	DCW615/DCW615R	2.82F03	1.4b	CH1.0
25	D1.0	CM	Toshiba	Tosh253	PCX4500/DAZ8841	1.0.0	17.0.0	D1.0
25	D1.1	CM	Arts	Art252	CM450A	CM.04.02.011703C	01	D1.1
25	D1.0	CM	Castlenet	Cast251	BTS10200	R4.0	R4.0	PC1.0
25	D2.0	CM	Linksys	Link255	WCG200	2.0.1.0.1	1.0b	D2.0
25	D1.1	CM	Linksys	Link251	BEFCMU10	1.1.5	3.0	D1.1
25	D1.1	CM	Linksys	Link257	WCG200	2.0.1.0.1	10.5	D1.1
25	D1.1	CM	Scientific Atlanta	Sci252	WebSTAR DPX100	1.1.21.1.3.1	2.1	D1.1
25	D1.1	CM	SMC	Smco253	SMC8013WG	2.0.0	1A	D1.1
25	D1.1	CM	Terayon	Teraz251	TA-102	2215	8.15	D1.1
25	D1.1	CM	Terayon	Teraz252	1.715	6.26	9.0	D1.1
25	D1.1	CM	Thomson	Thom253	DCW615/DCW615R	2.81F01	1.40	D1.1
25	D2.0	CM	Arbit	Arbit251	60678EU	2.57.2007	1.12	D2.0
25	D2.0	CM	Arts	Art253	CM465A	CM.04.02.011703C	01	D2.0
25	D2.0	CM	Castlenet	Cast253	CXC250	5.12121	010	D2.0
25	D2.0	CM	Thomson	Thom252	DCM315, DCM315R	ST32.06.00	1.2	D2.0
25	D2.0	CM	Hilton	Hir252	BRG-3520T	2.0.1	1A	D2.0
25	D1.1	CM	Terayon	Teraz255	TJ716X	5.25	7.0	D1.1
25	D2.0	CM	Motorola	Moto253	SB5120	SB5120-2.9.2.9-SCM-	1	D2.0
25	D2.0	CM	Motorola	Moto256	SB5120	03-NOSH	1	D2.0
25	D2.0	CM	Scientific Atlanta	Sci251	WebSTAR DPX2100	SB5120-2.9.3.9-SCM-	2	D2.0
25	PC1.0 in D1.1	CM	Arts	Art251	C4-CMTS-2100-1	2.0.11.1.3.1	1.1	PC1.0
25	D2.0	CM	Terayon	Teraz254	TJ715	6.20	7.0	D2.0
25	D2.0	CM	Toshiba	Tosh252	PCX2600/DAZ8823	3.0.13	19.0.0	D2.0
25	D1.1	CM	Netgear	Ngr251	CG814Maz	2.0.0	1A	D1.1
25	D1.1	CM	Motorola	Moto252	SB5120	03-NOSH	1	D1.1
25	D1.1	CM	Hilton	Hir251	BRG-3520T	2.0.1	1A	D1.1
25	D1.1	CM	Correlant	Cor251	EC330A	9.2.9	17.0	D1.1
25	D2.0	CM	Com21	Com251	DP1110XB2	2.5.2.111	1	D2.0
25	D1.1	CM	D-Link	Dln251	DCM-201	1.1.0	4A	D1.1
25	PC1.0 in D1.1	CM	Cisco	1Cie253	uBR7246v7	12.2(1)JBC2p	1.03	PC1.0
25	PC1.0 in D1.1	CM	Arts	Art251	TTN202P	FM03.02.020703C	05	PC1.0
25	D1.0	CM	Thomson	Thom251	DCM315/DCM315R	ST31.04.00	1.2	D1.0
25	D1.1	CM	Motorola	Moto259	SB3100	SB3100-1.4.8.13-	1	D1.1
25	D1.1	CM	Cisco	1Cie252	uBR7114	12.2(1)JBC3c	Rev 1.3	D1.1
25	D1.0	CM	Toshiba	Tosh251	PCX2600/DAZ8823	1.0.13	19.0.0	D1.0
25	PC1.0 in D1.1	CM	Motorola	Moto255	SBV4200	SBV4200-07.2.04-	1	PC1.0
25	PC1.0 in D1.1	CM	Cisco	1Cie251	uBR10012	12.2(1)JBC2p	Rev 4.0 MC28 Rev A0	PC1.0
25	PC1.0 in D1.1	CM	Motorola	Moto251	BSR64000	1.3.0T04P21 NRAU	PCA-0100	PC1.0
25	PC1.0 in D2.0	CM	Terayon	Teraz251	BW6500	2.0.0.1.21	2.0	PC1.0
25	D1.1	CM	Kingo	Kipo251	CM01001	5.26	7.0	D1.1
25	D1.0	CM	Arbit	Arbit253	60740EUW	5.11.1001	4.6	CH1.0
25	D1.0	CM	DX Antenna	Dxan251	CDM-130D/AZ8621	1.0.6	8.1.1	D1.0
24	D1.1	CM	Arts	Art243	TD00DA1438	1.1.0	02	D1.1
24	D1.1	CM	Motorola	Moto242	SB5100	SB5100-1.1.1.1-SCM01-	1	D1.1
24	D1.1	CM	Kippo	Kipo241	CM01001	NOSH	1	D1.1
24	D1.1	CM	Com21	Com241	DP1110XB2	5.25	7.0	D1.1
24	D1.1	CM	Broadvent	Broad241	8601	2.5.2.110	1	D1.1
24	D1.1	CM	Askey	Aske241	CME100	1.1.5 r1	5.2	D1.1
24	D1.1	CM	Arts	Art241	TM02DB102	1.1.1 r1	1.0	D1.1
24	D1.1	CM	Arbit	Arbit241	60194E	3.5.1	04	D1.1
24	D1.0	CM	Toshiba	Tosh243	PCX2200/DAZ8818	2.23.1099	1.6	D1.0
24	D1.0	CM	Thomson	Thom242	DCM305/DCM305R	1.7.022	7.6	D1.0
24	D1.0	CM				ST23.18.41	028	D1.0

24	D1.1	CM	Pioneer	P100241	BT-M550W	1.1.1 r1	1.0		D1.1
24	D1.1	CMTS	Scientific Atlanta	ISde231	P1000 G1	2.1.1.168	M2.0-G1		D1.1
24	D1.1	CM	Toshiba	Tosh245	PCX2000DAZ7781	1.0.0	17.0.0		D1.1
24	D1.0	CM	Thomson	Thom241	DCM31SDCM315R	ST31.01.00	1.1		D1.0
24	D2.0	CM	Tenaxon	Tenax243	TJ715	6.19	3.0	Rev 3.0 MC5x20S rev.	D2.0
24	D1.1	CMTS	Cisco	1Cisc241	UBR10012	12.2(1)BC2c1	5.0		D1.1
24	D2.0	CMTS	Tenaxon	2Tenax241	BW3500	2.0.0.021	2.0		D2.0
24	D1.1	CMTS	Aris	1Ariz242	ARCD00048	4.2.6	01		D1.1
24	D1.1	CMTS	Cisco	1Cisc242	UBR200 VXR	12.2(1)BC1c	1.03		D1.1
24	D2.0	CM	Texas Instruments	Tenax242	TNETC406	27.8.2	13.1		D2.0
24	D2.0	CM	Scientific Atlanta	Sci241	WebSTAR DPX2100	2.0.1 r4	1.1		D2.0
24	D1.1	CM	Thomson	Thom244	DCM316DCM316R	5.25	8.0		D1.1
24	D2.0	CM	Xrosstech	Xros241	XCM-3800	7.0.2	6.0.1		D2.0
24	D1.1	CM	Scientific Atlanta	Sci242	WebSTAR DPX203	1.0.4 r4	5.0		D1.1
24	D1.1	CM	Ariz	Ariz242	TCR00A103	4.2.0	01		D1.1
24	D1.1	CM	Toshiba	Tosh241	PCX3000DAZ8431	6.2.3	13.0.0		D1.1
24	D1.1	CM	Texas Instruments	Tenax241	CX300	8.2.2	200.2		D1.1
24	D1.1	CM	Tenaxon	Tenax242	TJ715	5.25	7.0		D1.1
24	D1.1	CM	Tenaxon	Tenax241	TA-102	221	8.15		D1.1
24	D1.1	CM	Scientific Atlanta	Sci243	WebSTAR DPR362	1.1.1 r3	1.0		D1.1
24	D2.0	CM	Motorola	Moto243	SB5100	SB5100-1.1.1-SCM01-	1		D2.0
24	C1.0	EMTA	Netgear	Nigr241	CG314WH	NCOSH	1.30		CH1.0
24	PC1.0 in D1.1	EMTA	Ariz	Ariz241	TM02DB102	3.5.1	04		PC1.0
24	PC1.0 in D1.1	EMTA	Toshiba	Tosh242	PCX3000DAZ8831	7.2.3	13.0.0		PC1.0
24	PC1.0 in D1.1	CMTS+PC	Cisco	1Cisc241	UBR7246 VXR	12.2(1)BC1c	2.0		PC1.0
24	PC1.0 in D2.0	CMTS+PC	Tenaxon	2Tenax241	BW3500	2.0.0.0.16	2.0		PC1.0
24	C1.0	CM	Linksys	Link241	BEFCMUH4	2.64	1.30		CH1.0
24	D1.1	CM	Ariz	Ariz242	80878EU	2.57.1001	1.12		D1.1
23	D1.0	CM	Thomson	Thom231	DCM305DCM305R	ST24.13.40	028		D1.0
23	D1.0	CM	Toshiba	Tosh233	PCX2200DAZ8817	1.7.021	7.4		D1.0
23	D1.1	CM	Askey	Aske231	CME075	1.1.4 r1	5.4		D1.1
23	D1.1	CM	Balkin	Balk231	F505530-W	0.13645.2310	10		D1.1
23	D1.1	CM	CasidNet	Casid231	CXC150	0.13645.2310	10		D1.1
23	D1.1	CM	Com21	Com231	DP1110XB	2.3.2.109	3		D1.1
23	D1.1	CM	Hilron	Hir231	BRG-3520	1.1.0	4A		D1.1
23	D1.1	CM	Yoshida	Yosh231	PCX2500DAZ8921	1.0.11	9.2.3		D1.1
23	D1.1	CM	Linksys	Link233	BEFCMU10 Ver 2	1.1.4	4.0		D1.1
23	D1.0	CM	Toshiba	Tosh232	PCX5000DAZ8850	1.7.021SV	7.31		D1.0
23	D1.1	CM	Motorola	Moto231	BSR 64000	1.3.0T03P08AKRBU	PCA-0100		D1.1
23	D1.1	CMTS	Tenaxon	1Tenax231	BW3500	1.3.21.2	2.0		D1.1
23	D1.1	CM	Intel	Int231	5200	14.5.4	9		D1.1
23	D1.1	CMTS	Juniper	1Jnpr231	Juniper G1	2.1.1.166	M2.0.01		D1.1
23	D1.1	CM	Linksys	Link231	BEFCMUH4	2.53	1.30		D1.1
23	D1.0	CM	Motorola	Moto231	SBG1600	SBG1000-0.1.1.1-	1		D1.0
23	D1.1	CM	Ariz	Ariz231	CM00DA103	3.3.0	01		D1.1
23	D1.0	CM	Thomson	Thom232	DCV232	2.63	1.30		D1.0
23	D1.0	CM	Netgear	Nigr231	CM212	1.01	3A		D1.0
23	D1.0	CM	Motorola	Moto232	SB4300	2.7.1b	1		D1.0
23	D1.0	CM	Netgear	Nigr232	CG814W	2.63	1.10		D1.0
23	D1.0	CM	Scientific Atlanta	Sci231	Webstar DPX100	1.0.5 r1.1.3	2.1		D1.0
23	D1.0	CM	Scientific Atlanta	Sci232	Webstar DPX2100	2.0.1r	1.0		D1.0
23	D1.0	CM	SMC	Smc231	SMC8012WG	2.63	1.00		D1.0
23	D1.0	CM	Efficient Networks, Inc.	Eff231	SpeedStream 6101	2.22.2	1.8		D1.0
22	D1.1	CM	Fujitsu	Frie221	FSC 102	1.1.2 r1	5.1		D1.1
22	D1.1	CM	Motorola	Moto224	SB4200	1.4.8.5	1		D1.1
22	D1.1	CMTS	Cisco	1Cisc221	UBR200VXR/MC28C	12.2(7)BC1c	1.03, MC28C: Rev B0		D1.1
22	D1.1	CM	Texas Instruments	Tenax221	TNETC405T	6.3.0	HW 2.03		D1.1
22	D1.1	CM	Toshiba	Tosh222	PCX2500DAZ8821	2.0.7	9.1		D1.1
22	D1.1	CM	Motorola	Moto223	SB4100	1.4.8.5	9.2.2		D1.1
22	D1.1	CMTS	ADC	1Adc221	Cuda 12000 (C12-DM1x4SPM-SF)	R3.1.23	0		D1.1

22	D1.1	CMTS	Arts	1Ant222	ARCD00048	4.2.6	01	D1.1
22	D1.1	CMTS	Juniper	1Junp221	Juniper G10	2.0	2.0	D1.1
22	D1.1	CMTS	Motorola	1Moto221	BSR 84000	1.2.47 ARC	PCA-0057-02	D1.1
22	D1.1	CMTS	Motorola	1Moto222	BSR 1000	01.01.15 PRR	PCA-0027-050	D1.1
22	D1.1	CM	Com21	Cmto222	DP 1110XB	2.3.2.108	03	D1.1
22	D1.1	CMTS	ADC	1Adco222	Cuda 12000 (C-12- DW1x4SPM-SF)	R3.1.23	CMTS: Rev. 23	D1.1
22	D1.1	CM	Motorola	Moto222	SB4220	01-NOSH	1	D1.1
22	D1.1	CM	Toshiba	Tosh224	POX2200	1.7.017	7.3	D1.1
22	D1.1	CMTS	Scientific Atlanta	1Scl221	Prisma G10	2.1.0.18	3	D1.1
22	D1.1	CM	Com21	Cmto221	DP 1110XB	2.3.1.108	3	D1.1
22	D1.1	CM	Correlant	Cor221	EC270	1.8.10	7.41	D1.1
22	D1.1	CM	Jochong	Jcho222	SL-2800	Ver6.1.0	Ver2.1	D1.1
22	D1.1	CM	AsusTek	Asus222	ACM6045EB	1.9	1.4	D1.1
22	D1.1	CM	Linksys	Link222	BEFCMUH41	1.0.0	0A	D1.1
22	D1.1	CM	Linksys	Link223	BEFCMUH4	2.62	1.10	D1.1
22	D1.1	CM	Motorola	Moto221	SB4220	01-NOSH	1	D1.1
22	D1.1	CM	Pioneer	Plen221	BT-M800W	1.0.7 r1	3.0	D1.1
22	D1.1	CM	Scientific Atlanta	Scl221	WebStar DPX100	1.0.5 r1.1	1.0	D1.1
22	D1.1	CM	3Com	3Com221	3CR29223	02.06	2.00	D1.1
22	D1.1	CM	Scientific Atlanta	Scl223	WebStar DPX100	1.0.5 r1.1	2.2	D1.1
22	D1.1	CM	Thomson	Thom221	DCM3005/368R	ST22.05.01	028	D1.1
22	D1.1	CM	Toshiba	Tosh222	PCX2500/DAZ8821	1.0.6	9.1.1	D1.1
22	D1.1	CM	Scientific Atlanta	Scl222	WebStar DPX100	1.0.5 r1.1	2.1	D1.1
22	D1.1	CM	Broadcom	Broad21	8601	1.1.2 r1	5.1	D1.1
22	D1.1	CMTS	Arts	1Art221	C4-CMTS-2100-1	x02.00.02.10	1.0	D1.1
21	D1.1	CM	Conexant	Conn211	CY9421CM	4.12734	24943.15.0	D1.1
21	D1.1	CM	Askey	Aske211	CME075	1.1.2 r1	5.1	D1.1
21	D1.1	CM	Arts	Art211	A071M02NA	2.1.0	04	D1.1
21	D1.1	CM	SMC	Adm211	CM35003B-	2.3.1	3.0	D1.1
21	D1.1	CM	Thomson	Thom212	CSMC8011CM-B	ST.22.04.00	028	D1.1
21	D1.1	CM	Motorola	Moto214	RCA DCM305	0.4.4.0p	Rev. 1	D1.1
21	D1.1	CM	Motorola	Moto213	SB4200	0.4.4.0p	Rev. 0	D1.1
21	D1.1	CM	Linksys	Link211	BEFCMU10 ver. 2	1.0.6	4.0	D1.1
21	D1.1	CM	AsusTek	Asus211	ACM6045EB	1.80	1.00	D1.1
21	D1.1	CM	Asstra	Asst211	HM300c	71-0001-10	RCA 215 787/1 R1A	D1.1
21	D1.1	CM	Quanta Network	Quan211	QCM200	2.4.1	3.2	D1.1
21	D1.1	CM	DX Antenna	Dxan211	CDM-120/DAZ8820	1.1R.005	3.2.1	D1.1
21	D1.1	CMTS	Arts	1Art212	C4-CMTS2100	V01.01.00.12	1.0	D1.1
21	D1.1	CM	Linksys	Link212	BEFCMU10	1.0.4 Rel 2	3.0	D1.1
21	D1.1	CM	Scientific Atlanta	Scl211	WebSTAR DPX100	1.1.2 r1	2.1	D1.1
21	D1.1	CM	Tellabs	Tell211	CVM315A	2.5.0	RevA	D1.1
21	D1.1	CM	Terayon	Tera211	ECM615	4.34	1.3	D1.1
21	D1.1	CM	Terayon	Tera212	ECM715	5.08	3.0	D1.1
21	D1.1	CM	Thomson	Thom211	DCM2450/CM245R	ST.1C.0C.00	048	D1.1
21	D1.1	CM	Corsona	Cor211	CM6011	0.5096.360	04	D1.1
21	D1.1	CM	Best Data	Best211	XCM-2300	5.0.2	5.1.2	D1.1
21	D1.1	CM	Xrosstech	Xros211	RS 8600	8.2.1.1	Backplane Rev.A	D1.1
21	D1.1	CMTS	RiverStone	1Riv211	B2800	6.1.2.2.1	300-005-03-0B	D1.1
21	D1.1	CMTS	Terayon	1Tera212	Cuda 12000	R3.1.91	1	D1.1
21	D1.1	CMTS	ADC	1Adco211	UBR10012	12.2(4) BCC	Rev 4.0 MC28 RevA0	D1.1
21	D1.1	CMTS	Cisco	1Cisc211	Prisma G10	1.1.2 r1	1.0	D1.1
21	D1.1	CM	Scientific Atlanta	Scl212	WebSTAR DPX213	2.0.0	2.0.0	D1.1
21	D1.1	CMTS	Scientific Atlanta	Scl211	Prisma G10	2.1.0	14.00	D1.1
21	D1.1	CM	Samsung	Sams211	SCM-146U	0.4.3.3p	Rev. 0	D1.1
20	D1.1	CM	Motorola	Moto201	SB4100	1.1.1 r1	2.0	D1.1
20	D1.1	CM	Scientific Atlanta	Scl202	WebSTAR DPX100	CXC 112 22391/1 R1B	ROA 117 8493/1 R2A	D1.1
20	D1.1	CM	Ericsson	Erlc201	HM206C	1.1.0	02	D1.1
20	D1.1	CM	Arts	Art201	A3TM01NA	1.7.014	7.1	D1.1
20	D1.1	CM	Toshiba	Tosh204	PCX2200/DAZ8817	ST13.05.00	26	D1.1
20	D1.1	CM	Thomson	Thom201	RCA DCM245	1.0.5 r1	1.0	D1.1
20	D1.1	CM	Scientific Atlanta	Scl201	WebSTAR DPX100	V3.20	V1.A	D1.1
20	D1.1	CM	Tellabs	Tell201	CVM410A	0.4.3.3p	Rev. 1	D1.1
20	D1.1	CM	Motorola	Moto202	SB4200	2.25.988	1.6	D1.1
20	D1.1	CM	Arbit	Arbi201	60194E			D1.1



20	D1.0	CM	Hir201	BRG-3520	1.0.1	3A	D1.0
20	D1.0	CM	DLink	DCM-200	4.4382.1	3.2	D1.0
20	D1.0	CM	Cisco	UBR925	Ver 12.2	3.1	D1.0
20	D1.0	CM	Amel	6023TEUW	5.1.309	4.2	D1.0
20	D1.0	CM	3Com	3CR29223	01.22	2.06	D1.0
20	D1.1	CMTS	Cisco	UBR7200VAR/NC16S	12.17/CX2	rev B0 MC16S rev 1.0	D1.1
20	D1.0	CM	Pana201	T2-CM200	1.7.14	2.1	D1.0
20	D1.0	CM	Toshiba	PCX2500/DAZ8821	2.0.3	9.1.0	D1.1
20	D1.1	CM	Toshiba	PCX3000/DAZ8631	22.2.3	13.0.0	D1.1
20	D1.0	CM	Cisco	UBR10012	12.22/XF1	rev 3.0 MC28 Rev A0	D1.0
20	D1.0	CM	Toshiba	PCX2500/DAZ8821	1.0.2	9.1.0	D1.0
20	D1.1	CM	Texas Instruments	TNETC4G5T	4.0.9	9.0	D1.1
20	D1.0	CMTS	Pacific Broadband	Kodak G10	2.0.0.16	2.0.0 (M2/A1.2/D2.0)	D1.0
19	D1.0	CM	Thomson	DCM245/DCM245R	ST12.07.01	26	D1.0
19	D1.0	CM	Same191	SCM-120U	1.1.1	12.20	D1.0
19	D1.0	CM	Scientific Atlanta	WebSTAR DPX110	1.0.4 Release 2	4.0	D1.0
19	D1.0	CM	Scientific Atlanta	WebSTAR DPX110	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Askey	CME063	1.0.4 Release 2	4.0	D1.0
19	D1.0	CM	Askey	ECM615	3.52	1.2	D1.0
19	D1.0	CM	Tenyon	EC280T	1.7.11	7.11	D1.0
19	D1.0	CM	Correlant	CM4033	1.0.4 Release 2	3.0	D1.0
19	D1.0	CM	Askey	SMCR062CM	4.5096	9414.18.0	D1.0
19	D1.0	CM	Accon	BRG-3510	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Haupt191	LCM5000	1.0.9M1.2	A0	D1.0
19	D1.0	CM	LG Innotek	ECM610	3.47	1.2	D1.0
19	D1.0	CM	Tenyon	ACM6050EB	1.60	1.30	D1.0
19	D1.0	CM	Asus191	CXC110	0.5096.360	04	D1.0
19	D1.0	CM	Cast191	HM200c	CXC 112 2056/1 R58	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Eric191	HM204c	CXC 112 2065/1 R58	ROA 117 8439/1 R2A	D1.0
19	D1.0	CM	Eric192	SM206	R3G	R2B	D1.0
19	D1.0	CM	Eric193	LM200c	0.5095.360	02	D1.0
19	D1.0	CM	High Speed Surfing	SM206	4.5095	03	D1.0
19	D1.0	CM	LG Innotek	LM100	4.2.12p	Rev. 1	D1.0
19	D1.0	CM	Motorola	SB4000	2.8.3	1.6	D1.0
19	D1.0	CM	SMC	SMC 6002 CM	4.0.12P	Rev. 0	D1.0
19	D1.0	CM	Motor191	SB4100	1.0.9M1.2	A0	D1.0
19	D1.0	CM	Motor192	Dream Port-1200	4.0.12P	Rev. 4	D1.0
19	D1.0	CM	Tri-Gem Computer	SB4101	1.7.11	2.1	D1.0
19	D1.0	CM	Motor193	T2-CM200	0.5096.17	1.0	D1.1
19	D1.0	CM	Pana191	C4-CMTS-2100	2.22.2	1.8	D1.0
19	D1.1	CMTS	Cadant	60194E	Comersone CMTS	01	D1.1
19	D1.0	CM	Ambit	1500	4.2.0	7.1	D1.0
19	D1.1	CMTS	Aria	PCX1500/DAZ8816	1.7.011	7.0	D1.0
19	D1.0	CM	Toshiba	PCX1200/DAZ8815	Release 11x	484447.001 Rev A	D1.0
19	D1.0	CM	Toshiba	DCM-2100	1.7.11	7.0	D1.0
19	D1.0	CMTS	Motorola	EC200T	2.0.1	9.0.0	D1.1
19	D1.0	CM	Turbocomm	PCX2500/DAZ8821	2.0.1	2.0.0	D1.1
19	D1.1	CM	Toshiba	TNETC405	4.100	140	D1.0
19	D1.1	CM	Texas Instruments	Zoom Cable Modem	5041	20	D1.0
19	D1.0	CM	Zoom	SCM-120U	1.0.0	ROA117 8439/1 R2A	D1.0
18	D1.0	CM	Same191	HM204c	CXC112 2065/1 R5A	04	D1.0
18	D1.0	CM	Eric192	BEUCM11	0.4381.106	3.2	D1.0
18	D1.0	CM	Link181	DCM-200	4.4382	Power171	D1.0
18	D1.0	CM	D-Link	MNG2000	2.1.0	4.0	D1.0
18	D1.0	CM	Nel & Sys	HM200c	R3D	R2B	D1.0
18	D1.0	CM	Eric193	5001	1.65	0255-014 (MIB-295014)	D1.0
18	D1.0	CM	Zoom191	USR0600	2.13.2	1.6	D1.0
18	D1.0	CM	US Robotics	DCM245/DAZ8821	ST12.07	26	D1.0
18	D1.0	CM	Thomson	PCX 2000/DAZ8820	1.1R.006	3.3.2	D1.0
18	D1.0	CM	Toshiba	3CR29250	2.16.1	1.6	D1.0
18	D1.0	CM	3Com	PCX 2000/DAZ8820	1.1R.005	3.2.1	D1.0
18	D1.0	CM	Toshiba	60194E	2.8.3	1.6	D1.0
18	D1.0	CM	Ambit	BRG-3510	1.0.9M1.2	A0	D1.0
18	D1.0	CM	Hir181	CXC110-Dual Link	0.4590.230	04	D1.0
18	D1.0	CM	Cast181	3CR29250	2.10.5	1.6	D1.0
18	D1.0	CM	3Com	KODIAK F10	1.1.0.17	M1.1/A1.7/D1.1	D1.0
18	D1.0	CM	Pacific Broadband	SM100	0.4381.106	04	D1.0
18	D1.0	CMTS	High Speed Surfing				D1.0

18	D1.0	CM	Infinite	Inf181	ICM1150T	VCMem v1.8	ICM1150T Rev D	D1.0
18	D1.0	CM	Hillcon	Hlr182	BWG-3511	1.0.9W1.3	A0	D1.0
18	D1.0	CM	Ericson	Ere181	HM200C	CXC112 2095H R5A	POA117 8439H R2A	D1.0
17	D1.0	CM	Samsung	Sems171	SCM-130U	V2.1.0	13/10	D1.0
17	D1.0	CM	Global Telemann	Gls171	MediaLynx CM-2000	K	MediaLynx CM-2000	D1.0
17	D1.0	CM	Samsung	Sems171	SCM-120R	4.4381	Rev 0.5	D1.0
17	D1.0	CM	Scientific Atlanta	Sci171	Webstar DPX-110	1.0.3R4	3.0	D1.0
17	D1.0	CM	High Speed Surfing	Hgh171	SM110	0.4381.108	04	D1.0
17	D1.0	CM	Terayon	Tera171	ECM210	1.7.8	5.62	D1.0
17	D1.0	CM	Texas Instruments	Texa171	TNETCAR0G	2.17	3.2	D1.0
17	D1.0	CM	Askey	Aske171	CMED063	1.0.3R4	3.0	D1.0
17	D1.0	CM	Nortel Networks	Nort171	CM115U	1.0.3R4	3.0	D1.0
17	D1.0	CM	Motorola	Moto174	SB4100 Rev 3	4.0.9p	Rev 3	D1.0
17	D1.0	CM	Motorola	Moto173	SB4100 Rev 1	4.0.9p	Rev 1	D1.0
17	D1.0	CM	Motorola	Moto172	SB4100 Rev 0	4.0.9p	Rev 0	D1.0
17	D1.0	CM	Matsumita	Mats171	TZ-CMT100	1.1	1.1	D1.0
17	D1.0	CM	Cisco	Cisc171	CVA 122	cva120-k1v4y5-mz.TLN	3.1	D1.0
17	D1.0	CM	Dalios	Dalo171	CableXpert CMZ1100	4.0.43.81	1.0	D1.0
17	D1.0	CM	Castlernet	Cast172	CXC110-CT1	0.4381.108	04	D1.0
17	D1.0	CM	Elsag	Elsa171	MicroLink Cable	1.0.8	A3	D1.0
17	D1.0	CM	Motorola	Moto171	SB3100	3.2.12p	Rev 1	D1.0
17	D1.0	CM	Ericson	Eric171	HM200C R1A ZAT 510	R3D	R1A	D1.0
17	D1.0	CM	Ericson	Eric172	HM204C R1A ZAT 510	R4A	R1A	D1.0
17	D1.0	CM	Castlernet	Cast171	CXC110-ICabler	0.4381.108	04	D1.0
17	D1.0	CM	Powercom	Power171	PCR-2000U	4.4382	V2.2	D1.0
17	D1.0	CM	Arifs	Arif171	Comerstone CMTS-	1500	00	D1.0
17	D1.0	CM	RiverStone	RStm171	RS 8000	6.1.2.C.1	Backplane: 300-001-05-0A CMTS module 02	D1.0
17	D1.0	CM	Tellus	Tell171	Gathespan 2700	6.1.2.C.1	Backplane: 300-005-06-0A CMTS module: -2	D1.0
17	D1.0	CM	Terayon	Tera171	BE 2000BE-CMTS41	6.1.2.C.1	Backplane: 300-001-05-0A CMTS module: 02	D1.0
17	D1.0	CM	Cisco	Cisc172	UBR 7100	ubr7100-k1p-mz.121-	Line card rev 3	D1.0
17	D1.0	CM	3Com	3Com173	3CR25241	4.4.EC	upcon/rev 7	D1.0
17	D1.0	CM	3Com	3Com172	3CR29223	01.03	2.0	D1.0
17	D1.0	CM	Accion	Acc171	SMC 8001	01.15	2.0	D1.0
17	D1.0	CM	Zoom	Zoom161	5031	2.1.0	2/1	D1.0
16	D1.0	CM	RiverDelta	RDel161	BSRB4080	60.01.00.8A	029301	D1.0
16	D1.0	CM	Toshiba	Tosh161	DAZ2813	1.7.807	CHS-0001-02	D1.0
16	D1.0	CM	Nortel Networks	Nort161	CMZ20	v2.4 patch 1	V1.4	D1.0
16	D1.0	CM	Cisco	Cisc161	UBR7200MC28C	12.1(3a)EC	A0	D1.0
16	D1.0	CM	Elsag	Elsa161	204	1.30	G	D1.0
16	D1.0	CM	D-Link	Dlin161	DCM100	4.4270	3.2	D1.0
16	D1.0	CM	Ambit	Amb161	60218P	v2.2 patch 9	v2.1	D1.0
15	D1.0	CM	Ambit	Amb151	60194E	2.2.7	1.4	D1.0
15	D1.0	CM	Arifs	Arif151	CM200R	ST1.08	25	D1.0
15	D1.0	CM	Terayon	Tera151	ECM110	1.7.6	6.12	D1.0
15	D1.0	CM	Future Networks	Futur152	FN110C	V2.15	V1.C	D1.0
15	D1.0	CM	Net & Sys	Net151	MNG-1000	2.204	1.03	D1.0
15	D1.0	CM	3Com	3Com151	3CR29223	v1.10	v2.00	D1.0
15	D1.0	CM	Askey	Aske151	RT080	1.10.0	V8.0	D1.0
15	D1.0	CM	Cisco	Cisc151	UBR905	ubr925-k1k203w4y5-	A0	D1.0
15	D1.0	CM	Cite	Cite151	C1001	mz	01	D1.0
15	D1.0	CM	RiverStone	RStm151	RS 8100	1.0.3657	Chassis: rev B; CMTS;	D1.0
15	D1.0	CM	Toshiba	Tosh153	PCX1100UDAZ2813	6.1.0.1	Rev 02	D1.0
15	D1.0	CM	Lucent (Delta Kabel)	Luce151	Demos 38-033	1.7.006	5.62	D1.0
15	D1.0	CM	Toshiba	Tosh152	PCX1100UDAZ2811	V2.91.0	v8.0	D1.0
15	D1.0	CM	PowerDelta	PRdel152	BSR 1000	1.7.408	6.12	D1.0
15	D1.0	CM				2.1.9	BSR 1000	D1.0



15	D1.0	CMTS	Terayon	0Terat51	Teralink 2080 TLL-	6.1	Chassis: revB; CMTS:	D1.0
15	D1.0	CM	Terayon	Tera152	CMTS41A	Rev. 2		D1.0
15	D1.0	CM	Saejin	Saej151	ECM210	6.62		D1.0
15	D1.0	CM	Maspro	Masj151	SC-5100E	V1.2		D1.0
15	D1.0	CM	Terayon	Tera153	777CM2	V1.0		D1.0
15	D1.0	CM	Motorola	Moto152	TCM310	0036-58		D1.0
15	D1.0	CM	Cisco	OCisc151	SB3100 Rev C	Rev C		D1.0
15	D1.0	CM	Thomson	Thom151	UBR 7200 VXR	A0		D1.0
15	D1.0	CM	Com21	Com21	DCM235/235R	25		D1.0
15	D1.0	CM	CIS	Cis151	DP1110	6		D1.0
15	D1.0	CM	ElaasAG	Elaas151	WS-CM30EDTE	v1.0		D1.0
15	D1.0	CM	Motorola	0Moto151	204	E		D1.0
14	D1.0	CM	GVC	Gvc141	DCM 2000 475380-001-	475995-001-00 Rev 01		D1.0
14	D1.0	CM	D-Link	Dln141	CR-004/CON	Rev 31	PowerCom	D1.0
14	D1.0	CM	DX Antenna	Dxant141	DCM100	Rev 2.3	Teeth131	D1.0
14	D1.0	CM	Motorola	0Moto142	DAZ8811	6.11		D1.0
14	D1.0	CM	Ericsson	Eric142	MMLN 4004D	Rev R2B	TurboNet	D1.0
14	D1.0	CM	Com21	Com141	HM200c	Rev R1E	Communications	D1.0
14	D1.0	CM	Ericsson	Eric141	DP121	5.2		D1.0
14	D1.0	CM	Arifs	0Arif142	HM200c	Rev R1D		D1.0
14	D1.0	CM	Cisco	OCisc141	CMTS-1000	Rev 08		D1.0
14	D1.0	CM	AusTek	Aus141	UBR 7200 VXR	A0		D1.0
14	D1.0	CM	Zoom	Zoom142	ACM6000EB	1.3		D1.0
14	D1.0	CM	Amnit	Amnit141	5011	0293-01C		D1.0
14	D1.0	CM	Terayon	Tera141	60098E	Rev 6.6	TurboNet	D1.0
14	D1.0	CM	Amnit	Amnit142	ECM210	2.0		D1.0
14	D1.0	CM	Arifs	Am141	60098U	V25	RCA	D1.0
14	D1.0	CM	Thomson	Thom141	CM200U	Ver 5.14		D1.0
14	D1.0	CM	Samsung	Sams141	DCM 225	ST 5.14		D1.0
14	D1.0	CM	Zoom	Zoom141	SCN-110R Ether	Rev 11.10		D1.0
14	D1.0	CM	Motorola	Moto143	5001	Rev 2.0.2		D1.0
14	D1.0	CM	Powercom	Powe141	SB3100 Rev C	0295-01		D1.0
14	D1.0	CM	Motorola	Moto141	PCR-2800	Rev C		D1.0
13	D1.0	CM	GVC	Gvc131	SB3100 Rev D	Rev 2.3		D1.0
13	D1.0	CM	Alcatel	Alcat131	CMX-SO	Rev D		D1.0
13	D1.0	CM	Toshiba	Tosh131	UM141	B		D1.0
13	D1.0	CM	3Com	3Com135	17.3	6.10		D1.0
13	D1.0	CM	Joehong	Joeh131	DAZ8811	6.11		D1.0
13	D1.0	CM	Schware	Scho131	BR-003678-10	Rev B		D1.0
13	D1.0	CM	BAS	0Bas131	Supalink 2000	6.1		D1.0
13	D1.0	CM	Cisco	Cisc131	NSC200	6.10		D1.0
13	D1.0	CM	Toshiba	Tosh132	Cuda	D		D1.0
13	D1.0	CM	3Com	3Com133	UBR824	A0		D1.0
13	D1.0	CM	Askey	Aske131	DAZ8813	6.6		D1.0
13	D1.0	CM	Motorola	Moto133	3CR29220	2.00		D1.0
13	D1.0	CM	NetGame	Net131	CME033	V8.0		D1.0
13	D1.0	CM	3Com	3Com131	SB3100 Rev C	Rev C		D1.0
13	D1.0	CM	North Networks	Nort131	Phazer	6.0	Aske121	D1.0
13	D1.0	CM	Zykel	Zyke131	3CR29210	B.2		D1.0
13	D1.0	CM	Future Networks	Fut131	CM115	V8.0		D1.0
13	D1.0	CM	Future Networks	Fut132	941	Zygate v1.58		D1.0
13	D1.0	CM	3Com	3Com134	100L	V2.2		D1.0
13	D1.0	CM	NetGear	Netg131	V2.13	V1.0		D1.0
13	D1.0	CM	Best Data	Best131	80-6006971-01	Rev 1.0		D1.0
13	D1.0	CM	Arifs	Arif122	CM201	6.0		D1.0
12	D1.0	CM	Askey	Aske121	CMX110	6.10		D1.0
12	D1.0	CM	3Com	3Com121	CM200	V24		D1.0
12	D1.0	CM	Thomson	Thom123	CME030	V8.0		D1.0
12	D1.0	CM	High Speed Surfing	High121	CM200U	ST 5.05		D1.0
12	D1.0	CM	Thomson	Thom122	2940	L3		D1.0
12	D1.0	CM	Thomson	Thom121	DCM 225	V25		D1.0
12	D1.0	CM	Turbocomm	Turb121	SM100	6.1		D1.0
12	D1.0	CM	Terayon	Tera121	DCM 215	V24		D1.0
12	D1.0	CM			ST5.05	V24		D1.0
12	D1.0	CM			1.6.16	6.1		D1.0
12	D1.0	CM			1.6.16	6.1		D1.0
12	D1.0	CM			1.6.16	6.1		D1.0

12	D1.0	CM	Terayon	Tera122	ECM110	1.6.16	5.4	D1.0
12	D1.0	CM	Motorola	Mcio122	MANL03150A	2.0.051	74362G01	D1.0
12	D1.0	CM	Motorola	Mcio121	MLN6200A	10CL08	75087G01	D1.0
12	D1.0	CM	Toshiba	Tosh122	DAZ8811	1.7.002	6.1	D1.0
12	D1.0	CM	Dassault	Daas121	WD0020	1.6.16	6.1	D1.0
12	D1.0	CM	Com21	Com123	DP111	1.6.16	6.1	D1.0
12	D1.0	CM	Toshiba	Tosh121	DAZ8811	1.6.14	5.4	D1.0
12	D1.0	CM	Com21	Com114	DP101	1.6.14	6500106 rev55	D1.0
11	D1.0	CM	Com21	Com112	CP3001	1.0.5.100	ver 16	D1.0
11	D1.0	CM	Thomson	Thom111	DCM 205	ST 1.10	40	D1.0
11	D1.0	CM	Com21	Com113	UBR7200	11.3(11)NA:1	6500106 rev55	D1.0
11	D1.0	CM	Com21	Com111	CP3001	1.1.0.100	5.21	D1.0
11	D1.0	CM	DX Antenna	Dxan111	DAZ8801D	1.6.003	-001RevB	D1.0
11	D1.0	CM	General Instrument	Gene112	SB3100B	V3.0.7	5.4	D1.0
11	D1.0	CM	Best Data	Best111	CNX100	1.6.14	-002RevA	D1.0
11	D1.0	CM	General Instrument	Gene111	SE3100A	V3.0.7	6500087 rev54	D1.0
11	D1.0	CM	Com21	Com111	CP3001	1.0.1.100	HN Ver 12	D1.0
10	D1.0	CM	Thomson	Thom101	DCM 105	ST 20.5.3	5.4	D1.0
9	D1.0	CM	Terayon	Tera101	ECM100	1.6.9	03	D1.0
9	D1.0	CM	Aris	Arif091	DE3801E02	Ver 1.8.003	Ver 5.21	D1.0
9	D1.0	CM	Toshiba	Tosh092	PCX1000/DAZ8801F	2.0.0	1.1	D1.0
9	D1.0	CM	Philips	Phi091	PD19D	1.76	1.1	D1.0
9	D1.0	CM	Sony	Sony091	CNR-1000	1.1(0.76.1)	1.1	D1.0
9	D1.0	CM	Askey	Aske091	CME010	1.76	1.1	D1.0
9	D1.0	CM	Motorola	Moto091	MMLM4004D	5.010p13b	MAC, 74029G01, Rev A Engine, MYNIEZ306- 900MTX-HI, 74612G01, Rev16=RevA MTX-LQ, 74609G01, Rev 02 MRX, 74267G01, Rev C	D1.0
9	D1.0	CM	Cisco	Cisc091	UBR904	11.3(9)NA uc900-k1y4- mr.cablelabs.13may99	A0	D1.0
8	D1.0	CM	Samsung	Sams091	SCM-100R	1.1.78	1.2	D1.0
8	D1.0	CM	3Com	3Com091	3CR292-DE56	12.30	A01-3	D1.0
8	D1.0	CM	Aris	Arif091	DE3804E25	1.100.3	02	D1.0
8	D1.0	CM	General Instrument	Gene091	SB2100	V1.1.1	X3.002	D1.0
7	D1.0	CM	Toshiba	Tosh071	DAZ8801E	1.51k	5.2	D1.0
7	D1.0	CM	Cisco	Cisc071	UBR7200	11.3(7)NA	A0	D1.0
7	D1.0	CM	Thomson	Thom071	DCM 105	ST8.4	Pilot 3 c Rev's	D1.0, CH1.0

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Claim Element	Evidence of Infringement
1. A method for establishing a link layer connection	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>As described in the '631 patent, one example of a link layer connection is an error-control protocol. The Accused Method establishes a link layer connection by establishing an error-corrected upstream data connection between a DOCSIS 2.0 compliant CM and CMTS.</p> <p>The '631 patent describes that a link layer connection "is provided to perform error checking functions as well as retransmitting frames that are not received correctly." (1:53-54.) The Accused Method, to comply with the DOCSIS 2.0 standard, must establish an error-corrected (i.e., link layer) connection between the DOCSIS 2.0 compliant CMs and CMTSes. The DOCSIS 2.0 standard sets forth at least four protocols to establish such a connection: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths); trellis-coded modulation; and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the Accused Method are insubstantial.<sup>1</sup> The Accused Method performs substantially the same function (establishing a link layer connection), in substantially the same way (by establishing an error control protocol), to achieve substantially the same result (establishment of a connection using a shared link layer protocol), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's</p>

<sup>1</sup> Any use within these charts of the words "limitation" or "portion" of a claim are for convenience, and do not constitute any admission that such language within the claim forms the boundaries of a claim element for purposes of the doctrine of equivalents. Moreover, no statement in these contentions should be construed as an admission that any language of the preamble is limiting. Rembrandt takes no position at this time regarding whether any language of any preamble is limiting.

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between a calling modem having a plurality of possible first physical layer modulations and a plurality of possible link layer connections	<p>modification to the Local Patent Rules, Rule 3-1(h).</p> <p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Method involves a calling modem, for example a DOCSIS 2.0 compliant CM. The Accused Method establishes a link layer connection (e.g., an error-corrected upstream or downstream data connection) between the calling modem (a DOCSIS 2.0 compliant CM) and an answering modem (a DOCSIS 2.0 compliant CMTS). The DOCSIS 2.0 compliant CM is typically located in the home or business of a Comcast cable Internet subscriber. The DOCSIS 2.0 compliant CMTS is operated by Comcast.</p> <p>The DOCSIS 2.0 compliant CMs have a plurality of possible first physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and CMTSes. The DOCSIS 2.0 compliant CMs therefore have a "a plurality of possible first physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (See <i>id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p>

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	<p>The DOCSIS 2.0 compliant CMs have a plurality of possible link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMs, used in the Accused Method, must support: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error Correction (T)" parameter); trellis-coded modulation with <math>m</math> (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of 1/2 or 2/3 (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the physical layer modulations and link layer connections utilized by the DOCSIS 2.0 compliant CMs are insubstantial. The DOCSIS 2.0 compliant CMs, physical layer modulations and link layer connections of the Accused Method perform substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing a calling modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication from a calling modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>In the alternative, the DOCSIS 2.0 compliant CM constitutes an answering modem and the DOCSIS 2.0 compliant CMTS constitutes a calling modem. It is understood that in this case the roles of these components can be reversed. For clarity and convenience, the descriptions within this chart describe the functionality of the DOCSIS 2.0 compliant Method utilizing the CM as the recited "calling modem" and the CMTS as the recited "answering modem."</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
and an answering modem	Rembrandt does not express a position at this time as to whether this portion of the preamble of this



Claim Element	Evidence of Infringement
<p>having a plurality of possible second physical layer modulations and a plurality of possible second link layer connections,</p>	<p>claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Method involves an answering modem, for example an DOCSIS 2.0 compliant CMTS. The Accused Method establishes a link layer connection (an error-corrected upstream or downstream data connection) between a calling modem (an DOCSIS 2.0 compliant CM) and an answering modem (an DOCSIS 2.0 compliant CMTS). Alternatively, an DOCSIS 2.0 compliant CM constitutes an answering modem and an DOCSIS 2.0 compliant CMTS constitutes a calling modem.</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 compliant CMTSes therefore have a "a plurality of possible second physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (See <i>id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMTSes, used in the Accused Method, must support: Reed-Solomon Forward Error</p>

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	<p>Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error Correction (T)" parameter); trellis-coded modulation with <math>m</math> (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of <math>1/2</math> or <math>2/3</math> (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features perform substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing an answering modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication with an answering modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>comprising the steps of:</p> <p>establishing a physical layer connection between said calling and said answering modems</p>	<p>In the Accused Method, the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes establish a physical layer connection on an upstream channel as follows: After the CM has acquired a downstream channel (see DOCSIS 2.0 standard at 241-42, § 11.2.1) the CM waits for the CMTS to send an upstream channel descriptor (UCD) message on the downstream channel. (See <i>id.</i> at 243, § 11.2.2.) The UCD describes the parameters of a specific upstream channel, including parameters for physical layer modulations as described in connection with the preamble analysis, above.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally</p>



Claim Element	Evidence of Infringement
<p>wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations; and</p>	<p>present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (establishing a physical layer connection between two modems), in substantially the same way (by selecting a physical layer modulation supported by each of the modems), to achieve substantially the same result (establishment of a physical layer connection using a common physical layer modulation), as the recited limitation.</p> <p>In the Accused Method, the physical layer modulation is negotiated when the CM selects an upstream channel based on a UCD message that contains channel description parameters, including parameters reflecting the physical layer modulation, that the CM supports. (See DOCSIS 2.0 standard at 243, § 11.2.2.)</p> <p>Because the CMTS will only offer, in the UCD, parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation. Similarly, because the CM will only accept an upstream channel described by a UCD containing parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (establishing a physical layer connection between two telecommunications devices), in substantially the same way (by selecting a mutually agreed upon physical layer modulation supported by each of the devices), to achieve substantially the same result (establishment of a physical layer connection between the devices using a common physical layer modulation supported by each device), as the recited limitation.</p>

Claim Element	Evidence of Infringement
	<p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>establishing said link layer connection based upon said negotiated physical layer modulation.</p>	<p>In the Accused Method, a link layer connection is established when the DOCSIS 2.0 compliant CM communicates on an upstream channel with an DOCSIS 2.0 compliant CMTS using Reed-Solomon encoding with a specified interleaver depth, trellis-coded modulation, or no error correction.</p> <p>The link layer connection that is established is based on the negotiated physical layer modulation. RS encoding with block interleaving is only available on a TDMA connection (DOCSIS type 1, 2, or 3A channel), whereas trellis-coded modulation is only available on an S-CDMA connection (DOCSIS type 3S channel). (<i>See id.</i> at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.)</p> <p>In addition, on information and belief, the Accused Method establishes a higher-strength link level connection on a higher-speed connection. Specifically, on information and belief, the CMTS sets the interleaver depth for the RS encoder to a higher value on higher-speed channels. Because link speed is one of the parameters of the negotiated physical layer modulation, and the interleaver depth is a parameter of the link level connection, the link layer connection is based on the physical layer connection.</p> <p>In addition, the trellis encoding and decoding related components used in a DOCSIS cable modem channel involve a link layer connection that is established based on the negotiated physical layer modulation. Specifically, one parameter of the physical layer modulation is the number of bits per symbol (<math>m</math>). The trellis-encoder interacts with a symbol mapper to produce different types of link layer connections based on the number of bits per symbol negotiated in the physical layer. For example, if <math>m=1</math>, a rate <math>1/2</math> coder is used in the link layer connection and if <math>m&gt;1</math>, a rate <math>2/3</math> coder is used in the link layer connection. Also, for different values <math>m=2,3,\dots,6</math>, i.e., when a rate <math>2/3</math> coder is used, different link layer encoding/decoding schemes will be implemented via the symbol mapper in the DOCSIS 2.0 CDMA compliant transmitter and the trellis decoder in the DOCSIS 2.0 CDMA compliant receiver. (<i>See</i> DOCSIS 2.0 standard at 70-71, Figs. 6-8, 6-18-6-26, and Table 6-3.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally</p>

Claim Element	Evidence of Infringement
	<p>present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (establishing a link layer connection between two telecommunications devices), in substantially the same way (selecting a link layer protocol based on the mutually agreed upon physical layer modulation), to achieve substantially the same result (establishing a mutually acceptable link layer connection between the devices that can be used by both the calling and answering devices), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>3. The method of claim 1, wherein said link layer connection is an error-correcting protocol.</p>	<p>The link-layer connection described above with respect to claim 1 is an error-correcting protocol. RS encoding and trellis-coded modulation are error-correcting protocols.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method perform substantially the same function (providing error control), in substantially the same way (encoding data for transmission), to achieve substantially the same result (reducing data errors in transmission), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>4. The method of claim 1, further comprising the step of presetting link layer parameters of said</p>	<p>In the Accused Method, the CM negotiates a link layer connection with the CMTS by selecting a channel offered by the CMTS with acceptable parameters for an error-correction protocol. The link layer parameters are preset to default values: RS encoding with block interleaving defaults to, and is preset to, <i>on</i>, with a predefined interleaver depth in a TDMA channel, and <i>off</i> in an S-CDMA channel.</p>

Claim Element	Evidence of Infringement
link layer connection to default settings based on said negotiated physical layer modulation.	<p>Trellis-coded modulation defaults to, and is preset to, <i>off</i> in a TDMA channel, and <i>on</i> in an S-CDMA channel. (<i>See id.</i> at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.)</p> <p>These link layer parameters are default settings, and may be changed. (<i>See id.</i> at 142, Table 8-19 (showing that TCM encoding can be turned on or off, that the RS interleaving depth can be modified or turned off, and that the RS interleaver block size may be specified)). Once an upstream channel is selected, the CM sends ranging signals to the CMTS on the selected channel. (<i>See</i> DOCSIS 2.0 standard at 244, § 11.2.2.) If the CMTS determines that the error level is too high, then the CMTS requires the CM to select a different channel. (<i>See id.</i> at 250, Fig. 11-8.) If ranging fails, the CM selects a different channel with the same channel type (1, 2, 3A, or 3S), with different link layer parameters set. (<i>See id.</i> at 250, Fig. 11-8 &amp; <i>id.</i> at 243, § 11.2.2 (“If initial ranging fails on a type 3 upstream, the CM MUST ensure that it has allowed sufficient time to detect any other type 3 upstreams that are available before moving on to a type 2 or type 1 upstream. . . . [I]t MUST try [type 2 upstreams] in preference to any type 1 upstreams.”)) Thus, on a noisy channel on which the default link layer parameters are unsuitable, new link layer parameters will be selected.</p> <p>These default settings are based on the negotiated physical layer modulation. For example, RS encoding with block interleaving defaults to <i>on</i> with a given interleaver depth only on TDMA channels; and trellis-coded modulation defaults to <i>on</i> only on S-CDMA channels. (<i>See</i> DOCSIS 2.0 standard at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.) In addition, on information and belief, the Accused Method defaults the interleaver depth to a higher value on higher-speed channels. Furthermore, in an S-CDMA channel, the encoding rate defaults to 2/3, but can be changed to 1/2. (<i>See</i> DOCSIS 2.0 standard at 50-51, § 6.2.8.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (setting link layer values, e.g., error control values), in substantially the same way (providing initial preset values for the link layer based on physical layer characteristics), to achieve substantially the same result (selecting</p>

Claim Element	Evidence of Infringement
	<p>a link layer protocol, e.g. an error control protocol), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>5. The method of claim 3, wherein said error-correcting protocol includes parameters that are set to pre-defined settings based on said negotiated physical layer modulation.</p>	<p>In the Accused Method, the CM negotiates a link layer connection with the CMTS by selecting a channel offered by the CMTS with acceptable parameters for an error-correction protocol. The link layer parameters are preset to default values: RS encoding with block interleaving is set to a predefined setting. In a TDMA channel, the predefined setting is <i>on</i>, with a predefined interleaver depth. In an S-CDMA channel, the predefined setting is <i>off</i>. Trellis-coded modulation is set to a predefined setting as well. In a TDMA channel, the predefined setting is <i>off</i>; and in an S-CDMA channel, the predefined setting is <i>on</i>. (See DOCSIS 2.0 standard at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.)</p> <p>The default settings are based on the negotiated physical layer modulation. RS encoding with block interleaving defaults to <i>on</i> with a given interleaver depth only on TDMA channels; and trellis-coded modulation defaults to <i>on</i> only on S-CDMA channels. (See DOCSIS 2.0 standard at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19. In addition, on information and belief, the Accused Method defaults the interleaver depth to a higher value on higher-speed channels.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Method, Rembrandt contends that the Accused Method meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Method are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (setting link layer values, e.g., error control values), in substantially the same way (providing initial preset values for the link layer based on physical layer characteristics), to achieve substantially the same result (selecting a link layer protocol, e.g. an error control protocol), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's</p>



Claim Element	Evidence of Infringement
	modification to the Local Patent Rules, Rule 3-1(h).
6. A system for establishing a link layer connection	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>As described in the '631 patent, one example of a link layer connection is an error-control protocol. The Accused System establishes a link layer connection by establishing an error-corrected upstream data connection between an DOCSIS 2.0 compliant CM and an DOCSIS 2.0 compliant CMTS.</p> <p>The '631 patent describes that a link layer connection "is provided to perform error checking functions as well as retransmitting frames that are not received correctly." (1:53-54.) The Accused System, to comply with the DOCSIS 2.0 standard, must establish an error-corrected (i.e., link layer) connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 standard sets forth at least four protocols to establish such a connection: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths); trellis-coded modulation; and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The aforementioned features of the Accused System performs substantially the same function (establishing a link layer connection), in substantially the same way (by establishing an error control protocol), to achieve substantially the same result (establishment of a connection using a shared link layer protocol), as the recited limitation.</p>
between a calling modem having a plurality of possible first physical layer modulations and a	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p>

Claim Element	Evidence of Infringement
<p>plurality of possible link layer connections</p>	<p>The Accused System includes a calling modem, for example an DOCSIS 2.0 compliant CM. The Accused System establishes a link layer connection (e.g., an error-corrected upstream or downstream data connection) between the calling modem (an DOCSIS 2.0 compliant CM) and an answering modem (an DOCSIS 2.0 compliant CMTS). The DOCSIS 2.0 compliant CM is typically located in the home or business of a Comcast cable Internet subscriber. The DOCSIS 2.0 compliant CMTS is operated by Comcast.</p> <p>The DOCSIS 2.0 compliant CMs have a plurality of possible first physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 compliant CMs therefore have a "a plurality of possible first physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (See <i>id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p> <p>The DOCSIS 2.0 compliant CMs have a plurality of possible link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMs, used in the Accused System, must support: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error</p>



Claim Element	Evidence of Infringement
	<p>Correction (T)" parameter); trellis-coded modulation with m (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of 1/2 or 2/3 (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of Accused System are insubstantial. The aforementioned features of the Accused System perform substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing a calling modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication from a calling modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>For clarity and convenience, the descriptions within this chart describe the functionality of the Accused System utilizing the CM as the recited "calling modem" and the CMTS as the recited "answering modem." In the alternative, the DOCSIS 2.0 compliant CM constitutes an answering modem and the DOCSIS 2.0 compliant CMTS constitutes a calling modem. It is understood that in this case the roles of these components can be reversed.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>and a[n] answering modem having a plurality of possible second physical layer modulations and a plurality of possible second link layer</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused System includes an answering modem, for example an DOCSIS 2.0 compliant CMTS. The Accused System establishes a link layer connection (an error-corrected upstream or downstream data connection) between a calling modem (an DOCSIS 2.0 compliant CM) and an answering modem</p>

Claim Element	Evidence of Infringement
connections,	<p>(an DOCSIS 2.0 compliant CMTS). Alternatively, an DOCSIS 2.0 compliant CM constitutes an answering modem and an DOCSIS 2.0 compliant CMTS constitutes a calling modem.</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 compliant CMTSes therefore have a "a plurality of possible second physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (See <i>id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMTSes, used in the Accused System, must support: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error Correction (T)" parameter); trellis-coded modulation with <math>m</math> (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of <math>1/2</math> or <math>2/3</math> (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p>

Claim Element	Evidence of Infringement
	<p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The aforementioned features of the Accused System perform substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing an answering modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication with an answering modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
comprising:	
means for establishing a physical layer connection between said calling and said answering modems,	<p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features.</p> <p>In the Accused System, the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes establish a physical layer connection on an upstream channel as follows: After the CM has acquired a downstream channel (<i>see</i> DOCSIS 2.0 standard at 241-42, § 11.2.1) the CM waits for the CMTS to send an upstream channel descriptor (UCD) message on the downstream channel. (<i>See id.</i> at 243, § 11.2.2.) The UCD describes the parameters of a specific upstream channel, including parameters for physical layer modulations as described in connection with the preamble analysis, above.</p> <p>The DOCSIS 2.0 compliant CMs and DOCSIS 2.0 compliant CMTSes perform this function using a programmable processor configured to execute instructions to carry out the functions identified in Figure 2. The precise algorithms used in the Accused System cannot be discerned without reference to</p>

Claim Element	Evidence of Infringement
	<p>the source code of these devices. Therefore, to the extent necessary, plaintiff reserves the right to supplement this disclosure pursuant to Appendix C, Rule 3-1(h).</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The aforementioned features of the Accused System performs substantially the same function (establishing a physical layer connection between two modems), in substantially the same way (by selecting a physical layer modulation supported by each of the modems), to achieve substantially the same result (establishment of a physical layer connection using a common physical layer modulation), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations; and</p>	<p>In the Accused System, the physical layer modulation is negotiated when the CM selects an upstream channel based on a UCD message that contains channel description parameters, including parameters reflecting the physical layer modulation, that the CM supports. (<i>See</i> DOCSIS 2.0 standard at 243, § 11.2.2.)</p> <p>Because the CMTS will only offer, in the UCD, parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation. Similarly, because the CM will only accept an upstream channel described by a UCD containing parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The</p>

Claim Element	Evidence of Infringement
	<p> aforementioned features of the Accused Method performs substantially the same function (establishing a physical layer connection between two telecommunications devices), in substantially the same way (by selecting a mutually agreed upon physical layer modulation supported by each of the devices), to achieve substantially the same result (establishment of a physical layer connection between the devices using a common physical layer modulation supported by each device), as the recited limitation. </p> <p> This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h). </p>
means for establishing said link layer connection based upon said negotiated physical layer modulation.	<p> The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features. </p> <p> In the Accused System, a link layer connection is established when the DOCSIS 2.0 compliant CM communicates on an upstream channel with an DOCSIS 2.0 compliant CMTS using Reed-Solomon encoding with a specified interleaver depth, trellis-coded modulation, or no error correction. </p> <p> The link layer connection that is established is based on the negotiated physical layer modulation. RS encoding with block interleaving is only available on a TDMA connection (DOCSIS type 1, 2, or 3A channel), whereas trellis-coded modulation is only available on an S-CDMA connection (DOCSIS type 3S channel). (<i>See id.</i> at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.) </p> <p> In addition, on information and belief, the Accused System establishes a higher-strength link level connection on a higher-speed connection. Specifically, on information and belief, the CMTS sets the interleaver depth for the RS encoder to a higher value on higher-speed channels. Because link speed is one of the parameters of the negotiated physical layer modulation, and the interleaver depth is a parameter of the link level connection, the link layer connection is based on the physical layer connection. </p> <p> In addition, the trellis encoding and decoding related components used in a DOCSIS cable modem channel involve a link layer connection that is established based on the negotiated physical layer modulation. Specifically, one parameter of the physical layer modulation is the number of bits per </p>



Claim Element	Evidence of Infringement
	<p>symbol (<math>m</math>). The trellis-encoder interacts with a symbol mapper to produce different types of link layer connections based on the number of bits per symbol negotiated in the physical layer. For example, if <math>m=1</math>, a rate 1/2 coder is used in the link layer connection and if <math>m&gt;1</math>, a rate 2/3 coder is used in the link layer connection. Also, for different values <math>m=2,3,...,6</math>, i.e., when a rate 2/3 coder is used, different link layer encoding/decoding schemes will be implemented via the symbol mapper in the DOCSIS 2.0 CDMA compliant transmitter and the trellis decoder in the DOCSIS 2.0 CDMA compliant receiver. (See DOCSIS 2.0 standard at 70-71, Figs. 6-8, 6-18-6-26, and Table 6-3.)</p> <p>The DOCSIS 2.0 compliant CMs and DOCSIS 2.0 compliant CMTSes perform this function using a programmable processor configured to execute instructions to carry out the functions identified in Figure 2. The precise algorithms used in the Accused System cannot be discerned without reference to the source code of these devices. Therefore, to the extent necessary, plaintiff reserves the right to supplement this disclosure pursuant to Appendix C, Rule 3-1(h).</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The aforementioned features of the Accused System performs substantially the same function (establishing a link layer connection between two telecommunication devices), in substantially the same way (selecting a link layer protocol based on the mutually agreed upon physical layer modulation), to achieve substantially the same result (establishing a mutually acceptable link layer connection between the devices that can be used by both the calling and answering devices), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
8. The system of claim 6, wherein said link layer connection is an error-	<p>The link-layer connection described above with respect to claim 6 is an error-correcting protocol. RS encoding and trellis-coded modulation are error-correcting protocols.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally</p>

Claim Element	Evidence of Infringement
correcting protocol.	<p>present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the RS encoding and/or trellis-coded modulation in the Accused System are insubstantial. The RS encoding and/or trellis-coded modulation of the Accused System perform substantially the same function (providing error control), in substantially the same way (encoding data for transmission), to achieve substantially the same result (reducing data errors in transmission), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>9. The system of claim 6, further comprising means for presetting link layer parameters of said link layer connection to predefined settings based on said negotiated physical layer modulation.</p>	<p>The Accused Instrumentalities include electronics and/or one or more processors executing code that implement the following features.</p> <p>In the Accused System, the CM negotiates a link layer connection with the CMTS by selecting a channel offered by the CMTS with acceptable parameters for an error-correction protocol. The link layer parameters are preset to default values: RS encoding with block interleaving defaults to, and is preset to, <i>on</i>, with a predefined interleaver depth in a TDMA channel, and <i>off</i> in an S-CDMA channel. Trellis-coded modulation defaults to, and is preset to, <i>off</i> in a TDMA channel, and <i>on</i> in an S-CDMA channel. (<i>See id.</i> at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.)</p> <p>These link layer parameters are default settings, and may be changed. (<i>See id.</i> at 142, Table 8-19 (showing that TCM encoding can be turned on or off, that the RS interleaving depth can be modified or turned off, and that the RS interleaver block size may be specified). Once an upstream channel is selected, the CM sends ranging signals to the CMTS on the selected channel. (<i>See</i> DOCSIS 2.0 standard at 244, § 11.2.2.) If the CMTS determines that the error level is too high, then the CMTS requires the CM to select a different channel. (<i>See id.</i> at 250, Fig. 11-8.) If ranging fails, the CM selects a different channel with the same channel type (1, 2, 3A, or 3S), with different link layer parameters set. (<i>See id.</i> at 250, Fig. 11-8 &amp; <i>id.</i> at 243, § 11.2.2 ("If initial ranging fails on a type 3 upstream, the CM MUST ensure that it has allowed sufficient time to detect any other type 3 upstreams that are available before moving on to a type 2 or type 1 upstream. . . . [I]t MUST try [type 2</p>



Claim Element	Evidence of Infringement
	<p>upstreams] in preference to any type 1 upstreams.”)) Thus, on a noisy channel on which the default link layer parameters are unsuitable, new link layer parameters will be selected.</p> <p>These default settings are based on the negotiated physical layer modulation. For example, RS encoding with block interleaving defaults to <i>on</i> with a given interleaver depth only on TDMA channels; and trellis-coded modulation defaults to <i>on</i> only on S-CDMA channels. (See DOCSIS 2.0 standard at 50, § 6.2.8 &amp; id. at 142, Table 8-19.) In addition, on information and belief, the Accused System defaults the interleaver depth to a higher value on higher-speed channels.</p> <p>The DOCSIS 2.0 compliant CMs and DOCSIS 2.0 compliant CMTSes perform this function using a programmable processor configured to execute instructions to carry out the functions identified in Figure 2. The precise algorithms used in the Accused System cannot be discerned without reference to the source code of these devices. Therefore, to the extent necessary, plaintiff reserves the right to supplement this disclosure pursuant to Appendix C, Rule 3-1(h).</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused System, Rembrandt contends that the Accused System meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused System are insubstantial. The aforementioned features of the Accused System performs substantially the same function (setting link layer values, e.g., error control values), in substantially the same way (providing initial preset values based on physical layer characteristics), to achieve substantially the same result (selecting a link layer protocol, e.g. an error control protocol), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward’s modification to the Local Patent Rules, Rule 3-1(h).</p>

Claim Element	Evidence of Infringement
<p>10. A computer program product having a computer readable medium including computer program logic recorded thereon for use in a calling modem</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>On information and belief, the Accused Software is a computer program product having a computer readable medium including computer program logic recorded thereon. The DOCSIS 2.0 compliant CM Software is used on the DOCSIS 2.0 compliant CMs (the claimed "calling modem").</p> <p>In the alternative, the DOCSIS 2.0 compliant CMTSes constitute the claimed calling modem. On information and belief, the DOCSIS 2.0 compliant CMTS Software is a computer program product having a computer readable medium including computer program logic.</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Software are insubstantial. The aforementioned features of the Accused Software performs substantially the same function (establishing a link layer connection), in substantially the same way (by establishing an error control protocol), to achieve substantially the same result (establishment of a connection using a shared link layer protocol), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>for establishing a link layer connection between said calling modem having a plurality of possible first physical layer modulations and a plurality of possible link</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Software includes a program residing on a calling modem, for example an DOCSIS 2.0 compliant CM, referred to herein as the DOCSIS 2.0 compliant CM Software. The Accused Software including the DOCSIS 2.0 compliant CM Software establishes a link layer connection (e.g., an error-</p>

Claim Element	Evidence of Infringement
layer connections	<p>corrected upstream or downstream data connection) between the calling modem (an DOCSIS 2.0 compliant CM) and an answering modem (an DOCSIS 2.0 compliant CMTS). The DOCSIS 2.0 compliant CM is typically located in the home or business of a Comcast cable Internet subscriber. The DOCSIS 2.0 compliant CMTS is operated by Comcast.</p> <p>The DOCSIS 2.0 compliant CMs have a plurality of possible first physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 compliant CMs therefore have a "a plurality of possible first physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (See <i>id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CM, "a plurality of possible first physical layer modulations."</p> <p>The DOCSIS 2.0 compliant CMs have a plurality of possible link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMs, used in the Accused Software, must support: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error Correction (T)" parameter); trellis-coded modulation with <i>m</i> (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of 1/2 or 2/3 (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction.</p>

Claim Element	Evidence of Infringement
	<p>(See DOCSIS 2.0 standard at 142, Table 8-19.)</p> <p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Software are insubstantial. The aforementioned features of the Accused Software performs substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing a program on a calling modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication from a calling modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>In the alternative, the DOCSIS 2.0 compliant CM constitutes an answering modem and the DOCSIS 2.0 compliant CMTS constitutes a calling modem. It is understood that in this case the roles of these components can be reversed. For clarity and convenience, the descriptions within this chart describe the Accused Software utilizing the CM as the recited "calling modem" and the CMTS as the recited "answering modem."</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>and an answering modem having a plurality of possible second physical layer modulations and a plurality of possible second link layer connections,</p>	<p>Rembrandt does not express a position at this time as to whether this portion of the preamble of this claim limits the claim's scope. Nevertheless, Rembrandt identifies below aspects of the Accused Instrumentalities that correspond to this portion of the claim preamble.</p> <p>The Accused Software includes a program residing on an answering modem, for example an DOCSIS 2.0 compliant CMTS, referred to herein as the DOCSIS 2.0 compliant CMTS Software. The Accused Software including the DOCSIS 2.0 compliant CMTS Software establishes a link layer connection (an error-corrected upstream or downstream data connection) between a calling modem (an DOCSIS 2.0 compliant CM) and an answering modem (an DOCSIS 2.0 compliant CMTS). Alternatively, an</p>

Claim Element	Evidence of Infringement
	<p>DOCSIS 2.0 compliant CM constitutes an answering modem and an DOCSIS 2.0 compliant CMTS constitutes a calling modem.</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second physical layer modulations. As described in the '631 patent, a physical layer connection "is concerned with establishing the electrical and mechanical connection between two modems." (1:50-51). The Time Division Multiple Access (TDMA) and Synchronous Code Division Multiple Access (S-CDMA) protocols relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The DOCSIS 2.0 compliant CMTSes therefore have a "a plurality of possible second physical layer modulations."</p> <p>In addition, modulation formats such as QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM are prescribed by the DOCSIS 2.0 standard. (See DOCSIS 2.0 standard at 141, Table 8-19.) Because these formats relate to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes, they represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>In addition, the DOCSIS 2.0 standard specifies that compliant devices must support a plurality of data rates: 160, 320, 640, 1280, 2560, or 5120 KHz. (<i>See id.</i> at 137, Table 8-18.) The data rate relates to the electrical and mechanical connection between the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes. The various data rates represent, with respect to the DOCSIS 2.0 compliant CMTS, "a plurality of possible second physical layer modulations."</p> <p>The DOCSIS 2.0 compliant CMTSes have a plurality of possible second link layer connections. The DOCSIS standard sets forth at least four possible link layer connections that compliant DOCSIS 2.0 compliant CMTSes, used in the Accused Software, must support: Reed-Solomon Forward Error Correction ("RS encoding") without block interleaving; RS encoding with block interleaving (with a plurality of permissible interleaver depths, see DOCSIS 2.0 standard at 141, Table 8-19 (showing "FEC Error Correction (T)" parameter); trellis-coded modulation with <math>m</math> (bits per symbol) equal to 1, 2, 3, 4, 5, or 6, and at a coding rate of <math>1/2</math> or <math>2/3</math> (see DOCSIS 2.0 standard at 50, § 6.2.8); and no error correction. (See DOCSIS 2.0 standard at 142, Table 8-19.)</p>



Claim Element	Evidence of Infringement
	<p>In the event this portion of the preamble is construed as limiting and found to be not literally present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of Accused Software are insubstantial. The aforementioned features of the Accused Software performs substantially the same function (providing physical modulation and link layer connection between a calling and answering modem), in substantially the same way (providing a program on an answering modem that supports a plurality of physical layer modulations and link layer connections), to achieve substantially the same result (communication with an answering modem using a physical layer modulation and a link layer connection selected from a plurality of modulations and connections), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
comprising:	
<p>logic for establishing a physical layer connection between said calling and said answering modems,</p>	<p>The Accused Software is utilized by the DOCSIS 2.0 compliant CMs and the DOCSIS 2.0 compliant CMTSes to establish a physical layer connection on an upstream channel as follows: After the CM has acquired a downstream channel (see DOCSIS 2.0 standard at 241-42, § 11.2.1) the CM waits for the CMTS to send an upstream channel descriptor (UCD) message on the downstream channel. (<i>See id.</i> at 243, § 11.2.2.) The UCD describes the parameters of a specific upstream channel, including parameters for physical layer modulations as described in connection with the preamble analysis, above.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Software are insubstantial. The aforementioned features of the Accused Software performs substantially the same function</p>

Claim Element	Evidence of Infringement
	<p>(establishing a physical layer connection between two modems), in substantially the same way (by selecting a physical layer modulation supported by each of the modems), to achieve substantially the same result (establishment of a physical layer connection using a common physical layer modulation), as the recited limitation.</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>
<p>wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations; and</p>	<p>Utilizing the Accused Software, the physical layer modulation is negotiated when the CM selects an upstream channel based on a UCD message that contains channel description parameters, including parameters reflecting the physical layer modulation, that the CM supports. (See DOCSIS 2.0 standard at 243, § 11.2.2.)</p> <p>Because the CMTS will only offer, in the UCD, parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation. Similarly, because the CM will only accept an upstream channel described by a UCD containing parameters for physical layer modulations that it supports, the negotiated physical layer modulation is chosen from the second physical layer modulation.</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Software are insubstantial. The aforementioned features of the Accused Method performs substantially the same function (establishing a physical layer connection between two telecommunications devices), in substantially the same way (by selecting a mutually agreed upon physical layer modulation supported by each of the devices), to achieve substantially the same result (establishment of a physical layer connection between the devices using a common physical layer modulation supported by each device), as the recited limitation..</p> <p>This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's</p>



Claim Element	Evidence of Infringement
	modification to the Local Patent Rules, Rule 3-1(h).
logic for establishing link layer connection based upon said negotiated physical layer modulation.	<p>Utilizing the Accused Software, a link layer connection is established when the DOCSIS 2.0 compliant CM communicates on an upstream channel with an DOCSIS 2.0 compliant CMTS using Reed-Solomon encoding with a specified interleaver depth, trellis-coded modulation, or no error correction.</p> <p>The link layer connection that is established is based on the negotiated physical layer modulation. RS encoding with block interleaving is only available on a TDMA connection (DOCSIS type 1, 2, or 3A channel), whereas trellis-coded modulation is only available on an S-CDMA connection (DOCSIS type 3S channel). (<i>See id.</i> at 50, § 6.2.8 &amp; <i>id.</i> at 142, Table 8-19.)</p> <p>In addition, on information and belief, the Accused Software establishes a higher-strength link level connection on a higher-speed connection. Specifically, on information and belief, the CMTS sets the interleaver depth for the RS encoder to a higher value on higher-speed channels. Because link speed is one of the parameters of the negotiated physical layer modulation, and the interleaver depth is a parameter of the link level connection, the link layer connection is based on the physical layer connection.</p> <p>In addition, the trellis encoding and decoding related components used in a DOCSIS cable modem channel involve a link layer connection that is established based on the negotiated physical layer modulation. Specifically, one parameter of the physical layer modulation is the number of bits per symbol (<math>m</math>). The trellis-encoder interacts with a symbol mapper to produce different types of link layer connections based on the number of bits per symbol negotiated in the physical layer. For example, if <math>m=1</math>, a rate 1/2 coder is used in the link layer connection and if <math>m&gt;1</math>, a rate 2/3 coder is used in the link layer connection. Also, for different values <math>m=2,3,...,6</math>, i.e., when a rate 2/3 coder is used, different link layer encoding/decoding schemes will be implemented via the symbol mapper in the DOCSIS 2.0 CDMA compliant transmitter and the trellis decoder in the DOCSIS 2.0 CDMA compliant receiver. (<i>See</i> DOCSIS 2.0 standard at 70-71, Figs. 6-8, 6-18-6-26, and Table 6-3.)</p> <p>In the event this limitation is construed or applied in such a way that it is found to be not literally</p>

Claim Element	Evidence of Infringement
	<p>present in the Accused Software, Rembrandt contends that the Accused Software meets the recited limitation under the doctrine of equivalents, because any purported differences between the recited limitation and the aforementioned features of the Accused Software are insubstantial. The aforementioned features of the Accused Software performs substantially the same function (establishing a link layer connection between two telecommunication devices), in substantially the same way (selecting a link layer protocol based on the mutually agreed upon physical layer modulation), to achieve substantially the same result (establishing a mutually acceptable link layer connection that can be used by both the devices), as the recited limitation. This claim element may include features that relate to software of the Accused Instrumentalities, and Rembrandt reserves the right to supplement or modify these contentions under Judge Ward's modification to the Local Patent Rules, Rule 3-1(h).</p>

# EXHIBIT B

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, INC.,

Plaintiff,

v.

COMCAST CORPORATION; COMCAST  
CABLE COMMUNICATIONS; LLC; and  
COMCAST OF PLANO, LP,

Defendant.

Case No. 2:05CV443 (TJW)

**DEFENDANT COMCAST CORPORATION'S RESPONSES TO**  
**PLAINTIFF REMBRANDT TECHNOLOGIES, INC.'S**  
**FIRST SET OF INTERROGATORIES**

Defendant Comcast Corporation ("Comcast") responds and objects to Plaintiff Rembrandt Technologies, Inc.'s ("Rembrandt") First Set of Interrogatories, pursuant to the Federal Rules of Civil Procedure and Local Rules of the United States District Court for the Eastern District of Texas. Discovery is ongoing in this matter; Comcast reserves the right to supplement its responses once discovery is completed.

### **GENERAL OBJECTIONS**

Comcast makes the following general objections to each and every interrogatory, definition and instruction (collectively, the "Interrogatories"), whether or not separately set forth in its specific responses:

1. Comcast objects to the Interrogatories, and each of them, to the extent they seek to impose obligations on Comcast that are broader than, or inconsistent with, the Federal Rules of Civil Procedure, the local rules of this Court, or as otherwise imposed or authorized by law.
2. Comcast objects to the Interrogatories, and each of them, to the extent they are vague, ambiguous, unintelligible, overbroad, and/or to the extent they fail to describe the information sought with the required reasonable particularity.
3. Comcast objects to the Interrogatories, and each of them, to the extent they seek information protected by any privilege, including without limitation the attorney-client privilege and the work product doctrine. Comcast will not produce such privileged or protected information. Any inadvertent disclosure of any privileged or protected information is not deemed a waiver of the privilege, and Comcast expressly reserves the right to object to introduction at trial or other use of any privileged information that may be inadvertently disclosed.
4. Comcast objects to the Interrogatories, and each of them, to the extent they relate to activities, documents, or information outside the territorial force of the patents-in-suit.

5. The responses herein are based upon such information and documents as are reasonably available to Comcast at this time. Further independent discovery, investigation, legal research and analysis by Comcast or its counsel may supply additional facts or documents and/or add meaning to known facts or documents. Comcast reserves the right to revise, amend, alter and/or supplement these responses at a later time and to make any additional objections that may become apparent. Comcast expressly reserves the right to make any use of, or introduce at any hearing or trial, information not produced in response to these Interrogatories if such information is not known or thought to be responsive at the time of response or is uncovered during the course of Comcast's ongoing investigation.

6. Comcast objects to the Interrogatories, and each of them, to the extent they seek information that is not relevant to the claims or defenses in this action, or reasonably calculated to lead to the discovery of admissible evidence. Comcast's agreement to furnish information in response to the Interrogatories shall not be deemed to constitute an admission as to the relevancy of such information, nor is it intended to waive any right to object to such information's admissibility at trial or in any other proceeding.

7. Comcast objects to the Interrogatories, and each of them, to the extent they seek information not within Comcast's possession, custody or control.

8. Comcast objects to the Interrogatories, and each of them, to the extent they seek public information, information or things from third parties or services, or other information that is more or equally accessible to Plaintiff. Comcast will not respond with such information.

9. Comcast objects to the Interrogatories, and each of them, to the extent they seek answers, or production of documents in lieu of written answers, containing trade secrets, proprietary information, or other confidential or competitively sensitive business information, to the extent that such information is not adequately protected by any protective orders which will ultimately be in force in this action.

10. Comcast objects to the Interrogatories, and each of them, to the extent they purport to require Comcast to disclose information that is subject to any protective order, privacy interest, contractual obligation, or other confidentiality obligation owed to any third party and therefore in violation of a legal or contractual obligation of nondisclosure to a third party. Comcast will not provide such information without the consent of the relevant third party or a court order.

11. No incidental or implied admissions are intended by the following responses. The fact that Comcast has responded or objected to any Interrogatory or part thereof shall not be deemed an admission that Comcast accepts or admits any particular claim construction, the existence of any facts set forth or assumed by such Interrogatory, or that such responses or objections constitute admissible evidence.

12. Comcast objects to Rembrandt's First Set of Interrogatories, and the definitions and instructions attached thereto, to the extent they call for the premature disclosure of expert opinions or analysis.

13. Comcast objects to Rembrandt's First Set of Interrogatories, and the definitions and instructions attached thereto, to the extent each interrogatory seeks information already in Rembrandt's possession, and/or is in the possession of third-parties and, therefore, is equally available to Rembrandt as to Comcast.

14. Comcast objects to the Interrogatories, and each of them, and to Rembrandt's definition of "Comcast" to the extent they require Comcast to collect and produce documents from local offices of affiliated operating companies. Collecting and producing such documents would be highly burdensome and expensive, and Rembrandt has not demonstrated any need for them. Comcast will produce documents from its corporate offices in Philadelphia and from its regional offices.

**RESPONSES TO INTERROGATORIES**

Subject to the foregoing General Objections, which are incorporated by reference as though set forth fully in each Response herein, Comcast responds to Rembrandt's First Set of Interrogatories as follows, reserving the right to supplement these responses as additional information or documents become available.

**INTERROGATORY NO. 1:**

State in detail all facts upon which Comcast relies in asserting each of Comcast's Affirmative Defenses set forth in Defendants' Answer and Counterclaims and provide the identity of all individuals with knowledge of any such facts and the identity of all documents and things concerning any such facts.

**RESPONSE TO INTERROGATORY NO. 1:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory to the extent it seeks the disclosure of information protected by the attorney-client privilege and the work product doctrine. Comcast further objects to this interrogatory because it is overbroad, unduly burdensome and oppressive. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative



defenses. Therefore, Comcast has been hindered in its ability to investigate the factual bases for its affirmative defenses, and on that basis, objects to this interrogatory. Comcast further objects on the basis that this interrogatory calls for information equally or more readily known and available to Rembrandt.

Subject to and without waiving the foregoing objections, Comcast responds as follows: For the bases of its invalidity defense, Defendant refers Plaintiff to Defendant's Preliminary Invalidity Contentions, which will be served by June 16, 2006. For the bases of its non-infringement defense, Rembrandt bears the burden of proof on infringement, and will not be able to meet its burden of proving infringement, either literally or under the doctrine of equivalents, of every element of the asserted claims. For the bases of its misuse defense, on information and belief, the asserted patents have been misused by Rembrandt by the commencement and maintenance of this action, in bad faith, without probable cause in knowing, or when it should have known, that it has no valid claim of patent infringement against Comcast, and for Rembrandt's enforcement of said patents and demands for royalties and other damages with respect to products not covered by its patents.

Based on the allegations in Rembrandt's Complaint and Comcast's investigation thus far, Comcast presently believes that the individuals and entities identified in Comcast's Initial Disclosures, which are herein incorporated by reference, may have discoverable information that Comcast may use to support its defenses in this action. Comcast anticipates that other individuals may also have discoverable information and specifically reserves the right to identify additional individuals as discovery proceeds.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt.

**INTERROGATORY NO. 2:**

State in detail all facts upon which Comcast relies in asserting each of Comcast's Counterclaims set forth in Defendants' Answer and Counterclaims and provide the identity of all individuals with knowledge of any such facts and the identity of all documents and things concerning any such facts.

**RESPONSE TO INTERROGATORY NO. 2:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory to the extent it seeks the disclosure of information protected by the attorney-client privilege and the work product doctrine. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's counterclaims. Therefore, Comcast has been hindered in its ability to investigate the factual bases for its counterclaims, and on that basis, objects to this interrogatory.

Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. For the bases of its invalidity counterclaim, Defendant refers

Plaintiff to Defendant's Preliminary Invalidity Contentions, which will be served by June 16, 2006. For the bases of its non-infringement counterclaim, Comcast asserts that Rembrandt bears the burden of proof on infringement, and will not be able to meet its burden of proving infringement, either literally or under the doctrine of equivalents, of every element of the asserted claims. For the bases of its unenforceability counterclaim, Comcast asserts, on information and belief, that the asserted patents have been misused by Rembrandt by the commencement and maintenance of this action, in bad faith, without probable cause in knowing, or when it should have known, that it has no valid claim of patent infringement against Comcast, and for Rembrandt's enforcement of said patents and demands for royalties and other damages with respect to products not covered by its patents.

Based on the allegations in Rembrandt's Complaint and Comcast's investigation thus far, Comcast presently believes that the individuals and entities identified in Comcast's Initial Disclosures, which are herein incorporated by reference, may have discoverable information that Comcast may use to support its counterclaims in this action. Comcast anticipates that other individuals may also have discoverable information and specifically reserves the right to identify additional individuals as discovery proceeds.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt.

### **INTERROGATORY NO. 3:**

If you contend that Comcast has not infringed any claim of Plaintiff's patent-in-suit, explain the specific basis for each such contention, including which specific claim limitation(s) Comcast alleges are not met literally or equivalently by the Accused Instrumentalities, the

reasons why Comcast so alleges, and the identity of each person with information concerning such contention and the production numbers of all documents that support such contentions.

**RESPONSE TO INTERROGATORY NO. 3:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory to the extent it seeks the disclosure of information protected by the attorney-client privilege and the work product doctrine. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory because Rembrandt bears the burden of proof on infringement, and has not yet met its burden of proving infringement, either literally or under the doctrine of equivalents, of every element of the asserted claims. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its ability to investigate the factual bases for its non-infringement defense, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, orders by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: For the bases of its non-infringement defense, Rembrandt bears the burden of proof on infringement, and

will not be able to meet its burden of proving infringement, either literally or under the doctrine of equivalents, of any of the following claim limitations that are underlined and/or in bold type<sup>1</sup>:

**'627 Patent:**

Claim 9. Receiver apparatus for recovering information from a received stream of trellis encoded signal points, said signal points having been transmitted to said receiver apparatus by transmitter apparatus which generates said signal points by generating a plurality of streams of trellis encoded channel symbols in response to respective portions of said information, each of said channel symbols being comprised of a plurality of signal points, and by interleaving the signal points of said generated channel symbols to form said stream of trellis encoded signal points, said interleaving being carried out in such a way that the signal points of each channel symbol are non-adjacent in said stream of trellis encoded signal points and such that the signal points of adjacent symbols in any one of said channel symbol streams are non-adjacent in said stream of trellis encoded signal points,

said receiver apparatus comprising

means for deinterleaving the interleaved signal points to recover said plurality of streams of trellis encoded channel symbols, and

a distributed Viterbi decoder for recovering said information from the deinterleaved signal points.

Claim 19. A method for use in a receiver to recover information from a received stream of trellis encoded signal points, said signal points having been transmitted to said receiver apparatus by a method which includes the steps of

generating a plurality of streams of trellis encoded channel symbols in response to respective portions of said information, each of said channel symbols being comprised of a plurality of signal points, and

interleaving the signal points of said generated channel symbols to form said stream of trellis encoded signal points, said interleaving being carried out in such a way that the signal points of each channel symbol are non-adjacent in said stream of trellis encoded signal points and such that the signal points of adjacent symbols in any one of said channel symbol streams are non-adjacent in said stream of trellis encoded signal points,

said method comprising the steps of

deinterleaving the interleaved signal points to recover said plurality of streams of trellis encoded channel symbols, and

using a distributed Viterbi decoder to recover said information from the deinterleaved signal points.

<sup>1</sup> Please note that every dependent claim incorporates all the limitations from the claim that it depends on, and is not infringed for the same reasons that Rembrandt will not be able to satisfy the claim limitation(s) from the corresponding independent claim.

**'631 Patent:**

Claim 1. A method for establishing a link layer connection between a calling modem having a plurality of possible first physical layer modulations and a plurality of possible link layer connections and an answering modem having a plurality of possible second physical layer modulations and a plurality of possible second link layer connections, comprising the steps of:

establishing a physical layer connection between said calling and said answering modems, wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations; and

establishing said link layer connection based upon said negotiated physical layer modulation.

Claim 3. The method of claim 1, wherein said link layer connection is an error-correcting protocol.

Claim 4. The method of claim 1, further comprising the step of presetting link layer parameters of said link layer connection to default settings based on said negotiated physical layer modulation.

Claim 5. The method of claim 3, wherein said error-correcting protocol includes parameters that are set to pre-defined settings based on said negotiated physical layer modulation.

Claim 6. A system for establishing a link layer connection between a calling modem having a plurality of possible first physical layer modulations and a plurality of possible link layer connections and an answering modem having a plurality of possible second physical layer modulations and a plurality of possible second link layer connections, comprising:

means for establishing a physical layer connection between said calling and said answering modems, wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations; and

means for establishing said link layer connection based upon said negotiated physical layer modulation.

Claim 7. The system of claim 6, wherein said negotiated physical layer modulation is a fast connect modem modulation.

Claim 8. The system of claim 6, wherein said link layer connection is an error-correcting protocol.

Claim 9. The system of claim 6, further comprising means for presetting link layer parameters of said link layer connection to pre-defined settings based on said negotiated physical layer modulation.

Claim 10. A computer program product having a computer readable medium



including computer program logic recorded thereon for use in a calling modem for establishing a link layer convention between said calling modem having a plurality of possible first physical layer modulations and a plurality of possible link layer connections and an answering modem having a plurality of possible second physical layer modulations and a plurality of possible second link layer connections, comprising:

logic for establishing a physical layer connection between said calling and said answering modems, wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations;  
and

logic for establishing link layer connection based upon said negotiated physical layer modulation.

### '819 Patent

Claim 1. A communications network comprising:

a master unit;

a plurality of remote units communicating with said master unit in a multidrop configuration;

wherein each of said remote units execute at least one application program, at least one of said remote units executing at least two application programs, said remote units receiving messages outbound from said master unit and responding in a time slot assigned to each of said application programs;

said master unit including a master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit to said master unit in a time division multiple access fashion; and

said master unit including ranging means communicating with said master network timing means wherein a transmission time between said master unit and each of said respective remote units is calculated and transmitted from said master unit to each of said respective remote units, each of said respective remote units using said transmission time to adjust initiation of said time slots.

Claim 2. The network of claim 1 wherein said remote units include a reservation request generator which activates a reservation request bit for requesting an additional time interval inbound to said master unit, and wherein said master unit includes a reservation request processor communicating to said master network timing means, said reservation request processor being responsive to said reservation request bit.

Claim 11. The network of claim 2 wherein said time slot comprises a format so as to include a preamble, a poll response data bit, said reservation request bits, at least one priority bit and error detection bit.

Claim 12. The network of claim 1 wherein the master unit includes means for calculating clock drifts of the remote units and issuing reset commands to correct the same whereby each remote unit determines its transmit epoch accurately, thereby minimizing guard time while maintaining contention-free transmission to said master unit, said means for calculating clock drifts and issuing reset commands being in communication with said master network timing means.



Claim 14. A method for a plurality of remote units to operate a plurality of application programs in communication with a master unit in a multidrop configuration, comprising the steps of:

calculating and storing in said master unit inbound and outbound transmission times between the master unit and said remote units;

dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs in said one of said remote units;

transmitting from said master unit to each of said respective remote units the transmission time between said master unit and said respective remote unit, each of said respective remote units using said transmission time to adjust initiation of said slots; and

transmitting data from each of said remote units to said master unit in a time division multiple access configuration wherein each application in each remote unit transmits during said assigned subframe.

### '858 Patent

Claim 1. Data communications apparatus comprising:

a time division multiplexed bus having a bandwidth, where a portion of the bandwidth is allotted to packet data;

a plurality of packet data sources coupled to the time-division multiplexed bus that share the allotted bandwidth for transmitting packet data; and

a distributed packet manager within each of said packet data sources configured to allocate access to the allotted bandwidth among said packet data sources.

Claim 7. Communications apparatus comprising:

a time-division multiplexed bus having a predefined bandwidth;

a plurality of synchronous data sources coupled to the time-division multiplexed bus for communicating synchronous data in a first portion of the predefined bandwidth;

a plurality of packet data sources coupled to the time-division multiplexed bus for communicating packet data in a second portion of the predefined bandwidth, where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data; and

a distributed packet manager within each of said packet data sources configured to allocate access to the second portion of the predefined bandwidth among said packet data sources.

Claim 8. The apparatus of claim 7 further including a network access manager coupled to the time-division-multiplexed bus for communicating the synchronous data and the packet data to at least one network facility.

Claim 9. Communications apparatus comprising:

a time-division multiplexed bus having a predefined bandwidth;

a plurality of synchronous data sources coupled to the time-division multiplexed bus for communicating synchronous data in a first portion of the predefined bandwidth; and

a plurality of packet data sources coupled to the time-division multiplexed bus for communicating packet data in a second portion of the predefined bandwidth, where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data, the second portion of the predefined bandwidth being shared in such a way that only one of the plurality of packet data sources accesses the second portion of the predefined bandwidth at a time.

Claim 10. The apparatus of claim 7 wherein each one of the plurality of packet data sources includes interface circuitry to the time-division multiplexed bus for synchronizing packet data to the time-division multiplexed bus.

Claim 11. Communications apparatus comprising:

a time-division multiplexed bus having a predefined bandwidth;

a plurality of synchronous data sources coupled to the time-division multiplexed bus for communicating synchronous data in a first portion of the predefined bandwidth;

a plurality of packet data sources coupled to the time-division multiplexed bus for communicating packet data in a second portion of the predefined bandwidth, where the plurality of packet data sources share the second portion of the predefined bandwidth for transmitting packet data, wherein each one of the plurality of packet data sources includes interface circuitry to the time-division multiplexed bus for synchronizing packet data to the time-division multiplexed bus, and the interface circuitry includes a counter for counting time-slots representing the second portion of the predefined bandwidth.

Claim 15. A method for use in a data communications apparatus for transmitting packet data on a time-division multiplexed bus, the method comprising the steps of:

coupling a plurality of packet data sources to the time-division multiplexed bus;

allocating a portion of the bandwidth of the time-division multiplexed bus to the plurality of packet data sources in such a way that the allocated portion is shared among the plurality of packet data sources;

transmitting packet data from the plurality of packet data sources on the allocated portion of the bandwidth; and

controlling access by said packet data sources to the allocated portion of the bandwidth via a distributed packet manager within each of said packet data sources.

Claim 20. A method for transmitting packet data on a time-division multiplexed bus in data communications equipment, the method comprising the steps of:

allocating a portion of the bandwidth of the time-division multiplexed bus as a multiple-access packet channel;

coupling a plurality of packet data sources to the time-division multiplexed bus;

controlling the access by said packet data sources to the allocated portion of the bandwidth via a distributed packet manager within each of said packet data sources;

transmitting packet data from the one of the plurality of packet data sources having access to the multiple-access packet channel.

Claim 26. The method of claim 20 further comprising the step of coupling a network access module to the time-division multiplexed bus for receiving the packet data for transmission over a network facility.

**INTERROGATORY NO. 4:**

State in detail the circumstances under which Comcast first became aware of each of the patents-in-suit, identifying each person who first gained knowledge of each patent-in-suit and the circumstances under which that person became aware of the patent.

**RESPONSE TO INTERROGATORY NO. 4:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast reserves the right to supplement and/or amend its answer to this interrogatory as discovery progresses. Comcast further objects to this interrogatory because it seeks the disclosure of information protected by the attorney-client privilege and the work product doctrine. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast first became aware of each of the patents-in-suit upon the filing of the complaint in this action.

**INTERROGATORY NO. 5:**

Identify each cable modem, cable modem termination system, digital television receiver, and any other Accused Instrumentality that Comcast has made, used, sold, imported, or caused any of these acts, or any such device used in connection with any data network or cable television network owned or operated by Comcast, since June 26, 1990, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory. For each product identified, include the manufacturer and model number, state whether Comcast makes, uses, sells, imports, or causes any of these acts.

**RESPONSE TO INTERROGATORY NO. 5:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects that this interrogatory is compound and contains multiple discreet subparts, and therefore should count as three interrogatories under Federal Rule of Civil Procedure 33(a). Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's response. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, orders by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: The cable modems that Comcast was able to determine that it has purchased are located in what is attached hereto as Exhibit A. The cable modem termination systems that Comcast was able to determine that it has purchased are located in what is attached hereto as Exhibit B. The digital

receivers that Comcast was able to determine that it has purchased are located in what is attached hereto as Exhibit C.

**INTERROGATORY NO. 6:**

For each cable modem and cable modem termination system identified in your response to Interrogatory No. 5 (collectively the "cable modem products"), state whether the cable modem product is compliant with any version of DOCSIS, and, if so, which version or versions, and explain in detail the basis for your contention, if any, that the cable modem or cable modem termination system is either (a) not compliant with DOCSIS 2.0, or (b) not compliant with any version of DOCSIS.

**RESPONSE TO INTERROGATORY NO. 6:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products or devices identified in response to Interrogatory No. 5. Comcast further objects to this interrogatory on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that

Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Upon information and belief, all cable modem products identified in Comcast's response to Interrogatory No. 5 are compliant with one or more versions of DOCSIS. To determine which versions of DOCSIS a particular cable modem product is compliant with, Comcast refers Rembrandt to the user manuals for that product, which will be produced as part of Comcast's initial document production.

**INTERROGATORY NO. 7:**

For each digital television receiver identified in your response to Interrogatory No. 5 (collectively the "ATSC products"), state whether the digital television receiver receives and/or decodes signals generated by equipment that is compliant with the ATSC Digital Television Standard. Explain in detail the basis for your contention, if any, that the digital television receiver does not receive and/or decode signals generated by equipment that is compliant with the ATSC Digital Television Standard.

**RESPONSE TO INTERROGATORY NO. 7:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products



or devices identified in response to Interrogatory No. 5. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects that this interrogatory is compound and contains multiple discreet subparts, and therefore should count as three interrogatories under Federal Rule of Civil Procedure 33(a). Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Each digital television receiver identified by Comcast in response to Interrogatory No. 5 is compliant with the ATSC Digital Television Standard.



**INTERROGATORY NO. 8:**

For each product identified in your response to Interrogatory No. 5 used by Comcast or used in connection with any data or cable network owned or operated by Comcast, explain in detail the manner in which the product is used.

**RESPONSE TO INTERROGATORY NO. 8:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is vague, overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows:

The cable modems identified in Comcast's Response to Interrogatory No. 5 are components installed at the Comcast subscriber end, which are used to permit Comcast subscribers to connect their computers to the internet via the Comcast network.

The cable modem termination systems identified in Comcast's Response to Interrogatory No. 5 are components deployed with Comcast Regional Headend facilities, and installed between the Comcast subscribers' cable modems and the Comcast network, which are used to provide control of, and communications with the cable modems.

The digital receivers identified in Comcast's Response to Interrogatory No. 5 are used to receive digital television signals that are transmitted in compliance with the ATSC Digital Television Standard.

**INTERROGATORY NO. 9:**

For each product identified in your response to Interrogatory No. 5, explain in detail the manner in which the product is acquired by Comcast and, where applicable, distributed to an end-user, including an identification of each step in the supply chain, beginning with the manufacturer of the product, and ending with the installation at the end-user's location.

**RESPONSE TO INTERROGATORY NO. 9:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is vague, overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects

to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: The products listed in Exhibits A, B, and C are acquired by Comcast directly from the company that is listed next to a particular product. Upon information and belief, CMTS products are installed at various Comcast Headends. Cable modems are installed in subscribers' homes. Digital Receivers are deployed at various Comcast local systems as needed to receive over-the-air digital broadcasts.

**INTERROGATORY NO. 10:**

For each applicable product identified in your response to Interrogatory No. 5, identify the person or persons involved in the design or development of the product's software, firmware, or other instructions intended to be executed by a processor or microprocessor. If a natural person is identified, identify the person's employer (if any), and state the person's address and telephone number. If a corporate person is identified, state the person's principal place of business, the address at which the software or firmware development takes place, and identify the natural person or persons responsible for such development.

**RESPONSE TO INTERROGATORY NO. 10:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products or devices identified in response to Interrogatory No. 5. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast refers plaintiff to the Exhibits A, B, and C, attached hereto, which list the manufacturer for each of the products and devices identified in Comcast's response to Interrogatory No. 5.

**INTERROGATORY NO. 11:**

For each product identified in your response to Interrogatory No. 5, identify all communications between Comcast and the manufacturer of the product relating to the product.

**RESPONSE TO INTERROGATORY NO. 11:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad, unduly burdensome, and oppressive in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because it is overbroad, unduly burdensome, and not reasonably calculated to lead to the discovery of relevant information in that it requests all communications between Comcast and numerous manufacturers, regardless of whether such communications have any bearing on the subject matter of this lawsuit. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

**INTERROGATORY NO. 12:**

State with specificity Comcast's revenues derived from each cable modem product (specified by manufacturer and model), including the revenues by month Comcast derives from the provision of data service through the specified cable modem product, separately including equipment rental fees, service provision fees, and any other type of fee or charge for the use of Comcast's cable modem network, cable modem, or cable modem head-end, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

**RESPONSE TO INTERROGATORY NO. 12:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to the interrogatory to the extent that it calls for information protected by the attorney-client privilege, the work product immunity, or any other applicable privilege or immunity. Comcast further objects to the use of the term "cable modem product" in this interrogatory for the reasons set forth in its objections and responses to interrogatory number 5. Comcast further objects to this interrogatory to the extent that it suggests that the revenues associated with all of Comcast's services provided using a cable modem product are "derived from" the use of that cable modem product alone; Comcast does not agree with that statement and does not indicate its assent therein by providing its response to the interrogatory. Comcast further objects to this interrogatory to the extent it purports to require Comcast to break down its revenues by model number or manufacturer of cable modem products, which is not a manner in which it tracks, or has any rational business reason to track, its revenues; being required to undertake a project to break down its revenues in that manner would be highly burdensome and entirely not calculated to lead to the discovery of admissible evidence. Comcast further objects to this interrogatory to the extent that it contains no reasonable time limitation upon the information it seeks; Comcast will provide responsive information only since 1999. Comcast further objects to this

interrogatory as vague, overbroad, and compound to the extent that it purports to require Comcast to provide the identities of three persons most knowledgeable about the "information sought by this interrogatory." The interrogatory could be viewed as dealing with the different sorts of cable modem products used by Comcast or Comcast's revenues. Without knowing with more specificity the type of information sought herein, Comcast is unable to identify which persons would have the most knowledge of that information. Subject to and without waiving the foregoing objections, Comcast responds as follows: Pursuant to Federal Rule of Civil Procedure 33(d), Comcast refers Rembrandt to the electronic business records produced along with these responses. The burden of ascertaining the information Rembrandt seeks from those records is the same for Rembrandt as it would be for Comcast.

**INTERROGATORY NO. 13:**

State with specificity Comcast's revenues derived from each ATSC product, including a list of ATSC products (specified by manufacturer and model), including the revenues by month Comcast derives from customers who receive signals originally received from the specified ATSC product, separately including equipment rental fees, service provision fees, and any other type of fee or charge for cable television service, or any tier or service level thereof, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

**RESPONSE TO INTERROGATORY NO. 13:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to the interrogatory to the extent that it calls for information protected by the attorney-client privilege, the work product immunity, or any other applicable privilege or immunity. Comcast further objects to the use of the term "ATSC product" in this interrogatory for the reasons set forth in its objections and responses to interrogatory number 5. Comcast further



objects to this interrogatory to the extent that it suggests that the revenues associated with all of Comcast's services provided using an ATSC product are "derived from" the use of signals originally received from that ATSC product alone; Comcast does not agree with that statement and does not indicate its assent therein by providing its response to the interrogatory. Comcast further objects to this interrogatory to the extent it purports to require Comcast to break down its revenues by model number or manufacturer of ATSC products, which is not a manner in which it tracks, or has any rational business reason to track, its revenues; being required to undertake a project to break down its revenues in that manner would be highly burdensome and entirely not calculated to lead to the discovery of admissible evidence. Comcast further objects to this interrogatory to the extent that it contains no reasonable time limitation upon the information it seeks; Comcast will provide responsive information only since 1999. Comcast further objects to this interrogatory as vague, overbroad, and compound to the extent that it purports to require Comcast to provide the identities of three persons most knowledgeable about the "information sought by this interrogatory." The interrogatory could be viewed as dealing with the different sorts of ATSC products used by Comcast or Comcast's revenues. Without knowing with more specificity the type of information sought herein, Comcast is unable to identify which persons would have the most knowledge of that information. Subject to and without waiving the foregoing objections, Comcast responds as follows: Pursuant to Federal Rule of Civil Procedure 33(d), Comcast refers Rembrandt to the electronic business records produced along with these responses. The burden of ascertaining the information Rembrandt seeks from those records is the same for Rembrandt as it would be for Comcast.

**INTERROGATORY NO. 14:**

Explain in detail all manners in which Comcast receives over-the-air TV signals according to the Terrestrial Broadcast provisions of the ATSC Digital TV Standard, and

transmits such signals to its customers since September 7, 1993, and identify three persons affiliated with Comcast with the most knowledge concerning the information sought by this interrogatory.

**RESPONSE TO INTERROGATORY NO. 14:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products or devices identified in response to Interrogatory No. 5. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 13 years. Comcast further objects to this interrogatory because it seeks premature disclosure of Comcast's expert witnesses and Comcast's positions regarding invalidity, non-infringement, and claim construction. See Local Patent Rule 2-5. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or

in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast uses the digital receivers identified in Comcast's Response to Interrogatory No. 5 to receive digital television signals that are transmitted in compliance with the ATSC Digital Television Standard. Comcast does not transmit digital television signals to its customers using the ATSC Digital Television Standard.

**INTERROGATORY NO. 15:**

For each Accused Instrumentality identified in response to Interrogatory No. 5, identify all persons involved in the conception, design or development of any such product, whether or not such persons are currently or were previously employed by Comcast, and state the role that each such person played in the conception, design or development.

**RESPONSE TO INTERROGATORY NO. 15:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products or devices identified in response to Interrogatory No. 5. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted

Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses.

Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast is not involved in the conception, design, or development of any of the Accused Instrumentalities identified in Comcast's response to Interrogatory No. 5.

**INTERROGATORY NO. 16:**

To the extent that persons other than Comcast sell or offer for sale any of the cable modem products or ATSC products on behalf of Comcast, or for use with any data network or cable television network owned or operated by Comcast, identify the persons, providing the address, telephone number, and person at each entity in charge of such activities, and the dates during which each entity performed such activities since June 26, 1990.

**RESPONSE TO INTERROGATORY NO. 16:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately the last 16 years. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities

until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Persons other than Comcast do not sell or offer for sale any cable modem products or ATSC products on behalf of Comcast. For a listing of products used within the Comcast data network and cable television network, Comcast refers plaintiff to the Exhibits A, B, and C, attached hereto.

**INTERROGATORY NO. 17:**

Identify all persons involved in Comcast's marketing, accounting, design, and development of any of the cable modem products and ATSC products, including the provision of cable modem service, indicating for each person which activity each person is associated with.

**RESPONSE TO INTERROGATORY NO. 17:**

Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory because it is overbroad and unduly burdensome in that it seeks information regarding the entire Comcast cable television network and data network covering approximately

the last 16 years. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast is not involved in the design or development of any of the cable modem products and ATSC products identified in Comcast's response to Interrogatory No. 5. Persons involved in Comcast's marketing of the cable modem products and ATSC products include: Tom White, Suzanne McFadden, John Vonk, and David Juliano. Persons involved in Comcast's accounting of the cable modem products and ATSC products include: Gary Rostick, Ernie Pighini, and Marc Sirota. Contact information for each of these individuals is included as part of Comcast's Initial Disclosures, submitted on June 1, 2006.

**INTERROGATORY NO. 18:**

List every patent that includes one or more claims that cover any of the cable modem products or ATSC products, and for each listed patent, include the name and address of the patent owner, identify the cable modem or ATSC product(s) covered by the patent, and identify

the claim or claims covering the cable modem or ATSC product(s), and identify with specificity any licensing agreement Comcast has entered with respect to the patent.

**RESPONSE TO INTERROGATORY NO. 18:**

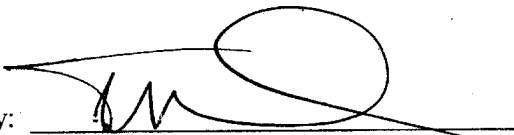
Comcast incorporates its General Objections herein by reference. Comcast further objects to this request on the grounds that its investigation of the facts is not yet complete and its answer to this interrogatory is therefore necessary preliminary. Comcast further objects to this interrogatory on the grounds that the information requested is not within Comcast's custody or control, as Comcast does not manufacture or develop any of the products or devices identified in response to Interrogatory No. 5. Comcast further objects to this interrogatory to the extent it calls for attorney work product or attorney client communications, or any other applicable privilege. Comcast further objects to this interrogatory because Defendants did not receive Plaintiffs' Preliminary Infringement Contentions and list of Accused Instrumentalities until approximately two weeks after these interrogatories were served. Comcast further objects to this interrogatory on the basis that Plaintiff's Preliminary Infringement Contentions and list of Accused Instrumentalities were improperly designated by Plaintiff as "Confidential", which has restricted Comcast's ability to disclose the Infringement Contentions and list of Accused Instrumentalities to third parties who may have information relevant to Comcast's affirmative defenses. Therefore, Comcast has been hindered in its factual investigation in this matter, and on that basis, objects to this interrogatory.

Comcast reserves the right to supplement or amend this answer based on additional investigation or analysis, proposed claim constructions or constructions ordered by the Court, or in response to any proof offered by Rembrandt. Subject to and without waiving the foregoing objections, Comcast responds as follows: Comcast is still investigating whether there are other patents that could be read to include one or more claims that cover any of the cable modem products or ATSC products. Comcast will supplement this answer in the event that it discovers



any such patents. Comcast further asserts that its use of accused devices purchased by third parties is protected by patent law's first-sale doctrine. Comcast does not have information sufficient to identify such patents at this time.

Dated: June 5, 2006

By:   
Eric H. MacMichael

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Daralyn Durie  
Leo L. Lam  
Eric H. MacMichael  
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Attorneys for Defendant  
COMCAST CORPORATION

Exhibit A

Rembrandt Technologies, LP v. Comcast Corporation, et al.**CABLE MODEMS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
3Com	3CR29220	79,720
3Com	3CR29221	1,099
3Com	3CR29223: USB Cable Modem	19,285
3Com	3CR29241: USB Cable Modem	21
3Com	OfficeConnect 3CR29210	6
3Com	US Robotics: CMX Cable Modem	22,813
AM Communications	MAM-9362 Transponder	20,345
Ambit Microsystems Corp.	CM 60194E: Ethernet/USB Cable Modem	12,607
Ambit Microsystems Corp.	CM 60678E	22,524
Ambit Microsystems Corp.	CM 60678EU: Ethernet/USB Cable Modem	681
Ambit Microsystems Corp.	U10C018	104,244
Arcwavell	BRM-35202 (Arcwave Wireless Bypass)	16
Arris	CM300A	1,171
Arris	CM450A	1,639
Arris	DOCSIS Cable Modem	4
Arris	TC00DA103	37
Arris	TM402P	626,016
Arris	TTM202P	15
Belkin	F5D5530-W	3,303
Best Data Products Inc.	CMX300V2	4,474
Best Data Products Inc.	Smart One CMX 100 Cable Modem	1,780
Best Data Products Inc.	Smart One CMX 110 Cable Modem	8,760
Best Data Products Inc.	Smart One CMX 300 Cable Modem	473
CastleNet	CXC110-Dual Link	2,743
CastleNet	CXC150	3,638
CastleNet	CXC250	25,707
Cisco Systems	uBR905 Cable Access Router	5,769
Cisco Systems	uBR924	30
Cisco Systems	uBR925	20
Com21	CP3001	2,426
Com21	DOXport 101	3
Com21	DOXport 111	19,896
Com21	DOXPort 1110 XB	613

Rembrandt Technologies, LP v. Comcast Corporation, et al.**CABLE MODEMS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
Com21	DOXport 1110: 10/100 Ethernet/USB Cable Modem	38,236
Com21	DOXport 121	2
Com21	DOXport 5020	2
D-Link Systems	DCM-100 Ethernet Cable Modem	2,401
D-Link Systems	DCM-200 Ethernet/USB Cable Modem	13,087
D-Link Systems	DCM-201 Ethernet/USB Cable Modem	8,217
D-Link Systems	DCM-202 Ethernet/USB Cable Modem	95,915
Electroline	DHT-PS-NA-01 Transponder	26,191
Ericsson	HM200C PipeRider Cable Modem	105
Ericsson	PipeRider CableModem ZAT 510 102	18
General Instrument	SB2100	3,112
General Instrument	SB2100D	6,899
General Instrument	SB3100	14,994
HighSpeed Surfing	SM100	4,523
HighSpeed Surfing	SM200	11
Hitron Technologies	BRG-3520	239
Hitron Technologies	BRM-35202	1
Linksys	BEFCMU10	30,217
Linksys	BEFCMU10 Version 2	93,485
Linksys	BEFCMU10 Version 4	53,343
Linksys	BEFCMUH10 Version 3	154,990
Linksys	BEFCMUH4 Cable Gateway	4,017
Linksys	WCG200 Comcast	127,271
Linksys	WCG200 Retail	30,693
Linksys	WCG200v2 Comcast	486
Linksys	WCG200v2 Retail	10,967
Motorola	MMLN3150A	214
Motorola	SBG1000	1,962
Motorola	SBV4200	102
Motorola	SURFboard 3100	199,391
Motorola	SURFboard 4000	26
Motorola	SURFboard 4100	468,698
Motorola	SURFboard 4101	15,812

Rembrandt Technologies, LP v. Comcast Corporation, et al.**CABLE MODEMS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
Motorola	SURFboard 4200	368,851
Motorola	SURFboard 4220	220,983
Motorola	SURFboard 5100	1,044,327
Motorola	SURFboard 5101	555,367
Motorola	SURFboard 5120	1,608,989
Motorola	SURFboard SBG900	19,365
NetGear	CG814CCR-V2	31
NetGear	CG814M	629
NetGear	CG814Mv2	19
NetGear	CG814W Wireless Cable Modem Gateway	57
NetGear	CG814WG	65,738
NetGear	CG814WGv2	48,360
NetGear	CM212	2,098
Nortel	CM6220-B4-R1	
Nortel	CM6220-B4-R1	
Nortel	CM6220-B4-R1	6
Samsung	SCM-120U: USB Cable Modem	1
Samsung	SCM-140U: USB Cable Modem	11
Scientific-Atlanta	WebSTAR Model DPC-2100	718,135
Scientific-Atlanta	WebSTAR Model DPR-300	17
Scientific-Atlanta	WebSTAR Model DPX-100 Cable Modem	67,001
Scientific-Atlanta	WebSTAR Model DPX-110 Cable Modem	18,741
Scientific-Atlanta	WebSTAR Model DPX-2100	148,045
SMC Networks	CM3503B-CSMC8011CM-B	42
SMC Networks	SMC 8002CM	641
SMC Networks	SMC8004CM	232
SMC Networks	SMC8012WG	2
SMC Networks	SMC8013WG-CCR	87,123
Speedstream	SpeedStream Cable Modem	1,580
TCE	DCM 105	16,318
TCE	DCM 205	7,107
Terayon Communication Systems	DOCSIS Cable Modem	788

Rembrandt Technologies, LP v. Comcast Corporation, et al.**CABLE MODEMS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
Terayon Communication Systems	Terajet ECM615	40,394
Terayon Communication Systems	Terajet ECM715	650,293
Terayon Communication Systems	Terajet ECM716x	155
Thomson	DCM215	40,024
Thomson	DCM225	17,961
Thomson	DCM235/235R	121,511
Thomson	DCM245/245R	273,209
Thomson	DCM305	38,997
Thomson	DCM315	407,906
Thomson	DCM325	137,057
Thomson	DCM425	654,878
Thomson	DCW615	1,155
Thomson	DCW725	7,444
Thomson	RCA DCM226	6,071
Thomson	TCM305	84,499
Tollgrade Communications, Inc	1.0.0	206
Tollgrade Communications, Inc	1.0.0-EXT 1	2,121
Tollgrade Communications, Inc	CMD-P	510
Toshiba	DOCSIS Cable Modem	63
Toshiba	DOCSIS Cable Modem	1
Toshiba	DOCSIS Cable Modem	7,388
Toshiba	DOCSIS Cable Modem	2,988
Toshiba	DOCSIS Cable Modem	23,229
Toshiba	DOCSIS Cable Modem	18,242
Toshiba	PCX1000/DAZ8801F	
Toshiba	PCX1100U/DAZ8813	37,126
Toshiba	PCX2000/DAZ8820	11,580
Toshiba	PCX2200/DAZ8817	42,816
Toshiba	PCX2500	2,048
Toshiba	PCX2600	13,287
Toshiba	PCX5000	674

Rembrandt Technologies, LP v. Comcast Corporation, et al.**CABLE MODEMS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
U.S. Robotics	USR6000: Cable Modem	152
Zoom Telephonics	Ethernet (10Base-T) 5011	1,344
Zoom Telephonics	PCI 5001	116
Zoom Telephonics	USB 5031/5041	2,647
ZyXEL	941	5
ZyXEL	Prestige 944S	10



Exhibit B

Rembrandt Technologies, LP v. Comcast Corporation, et al.

**CMTS**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
Cisco	UBR	1403
Arris	C4	419
Motorola	BSR	94

Exhibit C

Rembrandt Technologies, LP v. Comcast Corporation, et al.**Digital Receivers**

<b>VENDOR</b>	<b>MODEL</b>	<b>QUANTITY</b>
KTECH Telecommunications Inc.	200	10
KTECH Telecommunications Inc.	DCC-150	7
KTECH Telecommunications Inc.	DDR-150	23
KTECH Telecommunications Inc.	DVM100	7
KTECH Telecommunications Inc.	DVM-100	8
KTECH Telecommunications Inc.	DVM-150	22
KTECH Telecommunications Inc.	VSB FRQ200	10
Samsung	SIR-T151	1
Samsung	SIR-T351	1
Samsung	SIR-T451	2
Scientific-Atlanta	D6239	24
Sencore	3384A	1
Sencore	AT982	4
Sencore	AT983	1
Sencore	DM3382	3
Sencore	IRD3381	3
Terayon	CP 7585	131
Terayon	CP 7586	38
U.S. Digital	DB2010	1
VideoTek	DDM540	1
Wegener	DTV700	14
Wegener	DTV701	6
Wegener	DTV742	3

PROOF OF SERVICE

I am employed in the City and County of San Francisco, State of California in the office of a member of the bar of this court at whose direction the following service was made. I am over the age of eighteen years and not a party to the within action. My business address is Keker & Van Nest, LLP, 710 Sansome Street, San Francisco, California 94111.

On June 5, 2006, I served the following document(s):

**COMCAST'S RESPONSES TO PLAINTIFF'S FIRST SET OF INTERROGATORIES**

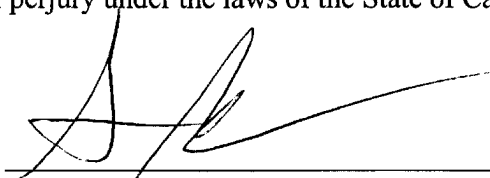
Select by regular **UNITED STATES MAIL** by placing a true and correct copy in a sealed envelope addressed as shown below. I am readily familiar with the practice of Keker & Van Nest, LLP for collection and processing of correspondence for mailing. According to that practice, items are deposited with the United States Postal Service at San Francisco, California on that same day with postage thereon fully prepaid. I am aware that, on motion of the party served, service is presumed invalid if the postal cancellation date or the postage meter date is more than one day after the date of deposit for mailing stated in this affidavit.

Michael H. Bunis, Esq.  
Frank E. Scherkenbach, Esq.  
Lawrence K. Kolodney, Esq.  
Fish & Richardson, P.C.  
225 Franklin Street  
Boston, MA 02110

Otis Carroll, Esq.  
Wesley Hill, Esq.  
Ireland, Carroll & Kelley, P.C.  
6101 S. Broadway, Suite 500  
Tyler, TX 75703

Executed on June 5, 2006, at San Francisco, California.

I, Aaron L. Madfes, declare under penalty of perjury under the laws of the State of California that the above is true and correct.



# EXHIBIT C

## FISH & RICHARDSON P.C.

Frederick P. Fish  
1855-1930

W.K. Richardson  
1859-1951

### VIA EMAIL

November 1, 2006

Eric MacMichael  
Keker & Van Nest LLP  
710 Sansome Street  
San Francisco, CA 94111

Re: Rembrandt Technologies, LP v. Comcast Corp. et al.  
USDC-E.D. TX (Marshall) - Civil Action No. 2:05-cv-00443-TJW

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ATLANTA

AUSTIN

BOSTON

DALLAS

DELAWARE

NEW YORK

SAN DIEGO

SILICON VALLEY

TWIN CITIES

WASHINGTON, DC

Dear Eric:

In Rembrandt's preliminary infringement contentions, we provided extensive analysis as to why the Accused Instrumentalities infringe the patents-in-suit. Our analysis of the source code in escrow, thus far, confirms our previously-submitted analysis. It is Rembrandt's position that Judge Ward's P.R. 3-1(h) does not require us to supplement our infringement contentions in this situation. Rather, we believe that we are permitted to rely on our original infringement contentions, and use at trial any evidence produced during discovery to support those contentions, including source code. If, however, future review of source code requires Rembrandt to amend its substantive infringement contentions, we believe that we are permitted to do so in compliance with Judge Ward's rule.

If Comcast's understanding differs, please let us know at your earliest convenience so that we may ask the Court for clarification.

Very truly yours,

Thomas A. Brown

21466962.doc

# EXHIBIT D

LAW OFFICES

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WWW.KVN.COM

ERIC H. MACMICHAEL  
EMACMICHAEL@KVN.COM

November 3, 2006

### VIA E-MAIL

Thomas Brown, Esq.  
Fish & Richardson, P.C.  
225 Franklin Street  
Boston, MA 02110

Re: *Rembrandt Technologies, LP v. Comcast Corporation, et al.*

Dear Tom:

I write to inform you that Comcast disagrees with Rembrandt's characterization of Judge Ward's P.R. 3-1(h), and the obligations imposed thereunder. Rule 3-1(h) states that:

If a party claiming patent infringement asserts that a claim element is a software limitation, the party need not comply with P.R. 3-1 for those claim elements until 30 days after source code for each Accused Instrumentality is produced by the opposing party. Thereafter, the party claiming patent infringement shall identify, on an element-by-element basis for each asserted claim, what source code of each Accused Instrumentality allegedly satisfies the software limitations of the asserted claim elements.

If Rembrandt contends that a claim element is a software limitation, please supplement your Preliminary Infringement Contentions immediately to "identify, on an element-by-element basis for each asserted claim, what source code of each Accused Instrumentality allegedly satisfies the software limitations of the asserted claim elements." If Rembrandt fails to comply with this requirement, it is Comcast's position that this rule prohibits Rembrandt from later relying on source code to prove that any claim limitation is satisfied by the Accused Instrumentality.

Thank you for your attention to these matters. If you disagree, please do not hesitate to contact me and/or to discuss if this matter should be raised with the Court.

Sincerely,

Eric H. MacMichael



Tom Brown, Esq.  
Page 2

EHM:dc

cc: BFerrall  
MWerdegar